

**USS Camp Creek Solar LLC
James A. & Lacey B. Hastings
Special Use**

PLANNING COMMISSION HEARING

June 12, 2023

7:00 p.m.

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**MORGAN COUNTY
PLANNING AND BUILDING DEPARTMENT**

May 10, 2023

USS Camp Creek Solar LLC
Attn: Ryan Magnoni
100 N 6th St., Suite 410B
Minneapolis, MN 55403
Sent via email: ryan.magnoni@us-solar.com

Dear Applicant:

Your Application for a Use by Special Review has been received by our office and will go through a full review. The hearing for the Planning Commission will be held on **June 12th, 2023 at 7:00 P.M.**

As stated in an Email dated May 3, 2023, the Morgan County Planning and Zoning Department must receive the glare report **no later than May 26, 2023** to be able to move forward with the June 12th hearing.

Public Notice sign posting on the property will need to happen no later than June 2, 2023. Pictures and affidavit are due in our office no later than June 7, 2023. The signs are 24"x26" and will be prepared and ready to be picked up May 30, 2023. The County is not responsible for supplying materials or equipment needed for the landowners or their representatives to post the signs.

It is necessary that you and the landowners or their representatives be present at the hearing to answer any questions the Planning Commission may have. Do not hesitate to contact us at any time if you have questions.

Sincerely,

Nicole Hay

Nicole Hay
Planning Administrator

FILE SUMMARY



MORGAN COUNTY PLANNING AND BUILDING DEPARTMENT

MORGAN COUNTY PLANNING COMMISSION FILE SUMMARY

June 6, 2023

June 12, 2023 Hearing Date

APPLICANT: USS Camp Creek Solar LLC, Ryan Magnoni
LANDOWNER: James and Lacey Hastings

This application is for a Special Use Permit to allow for a solar collector facility with a maximum of power output of 2.19 MWac. The permitted area is located in part of the E1/2NE1/4 of Section 15, Township 4 North, Range 55 West of the 6th PM, Morgan County, Colorado. The property will be accessed via 60 foot access easement off of County Road W. The permitted area is zoned Agricultural Production District and is located in the Hillrose Fire District.

The applicant, USS Camp Creek Solar LLC, proposes a solar collector facility within approximately 12.1 acres. The facility will be constructed and consist of solar panels and inverters mounted on steel posts/beams, concrete pad mounted transformers, and other electrical equipment, an access drive, and perimeter fencing with locked gates. The locked gates will be accessible to emergency services.

During construction, onsite activity is expected to take place between the hours of 7am and 7pm, Monday through Saturday and is expected to last about 4 months. During operation, the facility will not be staffed so the facility will have minimal traffic impacts once constructed.

In addition to the permit application, packets for the Planning Commission hearing include referral responses from the City of Brush, Colorado Department of Transportation, and Xcel Energy. Xcel stated additional easements may need to be acquired by a separate document and asks the developer to work with the right-of-way and permits agent.

Finally, there are no concerns from the County's consulting engineer, Matt Harris with Harris Engineering Consultants, Inc., after review of the preliminary engineering reports with drainage plans.

In reviewing these applications, the Planning Commission and Board of County Commissioners are required to make a finding that the criteria for granting a Use by Special Review in Section 2-395 of the Morgan County Zoning Regulations have been satisfied. In addition, the County shall consider whether each application for solar collector facility complies with the requirements of the Solar Collector Regulations in Zoning Regulations.

Section 2-395 Special Use Permit Criteria:

- (A) The use and its location as proposed are in conformance with the Morgan County Comprehensive Plan. The property is located in the northeast planning area.

Chapter 2 – Plan Summary

Section 2.II.C - County Wide Land Use

Goal – To encourage development where: 1) it is in proximity to the activity centers; 2) the proposed development is compatible with existing land uses; 3) there is access to established public infrastructure; and 4) where in outlying areas of the county there is access to utilities and there is little additional burden on rural services. *The project is intentionally located further from Morgan County activity centers. The existing adjacent land uses are predominantly grasslands and agricultural, which are compatible with small solar developments. The property has sufficient access to public roads and utilities infrastructure. US Solar has worked closely with Xcel Energy to study the interconnection viability. This project will place very little burden on rural services. No water, sewage, or waste management services are required onsite.*

Chapter 5 - Environment

Section 5.IX

Goal - To preserve the manmade and natural environment in order to enhance the quality of life in Morgan County. *The proposed project will maintain the agricultural nature of the property and the surrounding areas while providing clean, renewable electricity. There will be no encroachment or include any floodway areas, wetlands, or habitats of threatened or endangered species.*

Chapter 8 – Utilities, Public Facilities and Services

Section II

Goal - To develop essential public facilities and services which contribute to providing a high quality of life for residents of Morgan County. *This project will produce reliable, clean electricity to power over 500 homes annually and will be distributed to local homes and businesses.*

- (B) All the application documents are complete and present a clear picture of how uses are to be arranged on the site or within Morgan County.
- (C) The Site Plan conforms to the district design standards of Section 2-420 and Section 4-820 of the Morgan County Zoning Regulations.
- (D) All on and off-site impacts have been satisfactorily mitigated either through agreement, public improvements, site plan requirements or other mitigation measures. *During construction and when necessary, water trucks will be used for dust mitigation. Upon completion, the area underneath the modules and between rows will be transformed into a diverse mix of pollinator-friendly, low-lying, deep-rooted plants. Landscaping maintenance will occur on a regular basis during the growing season.*

- (E) The special use proposed has been made compatible with the surrounding uses and adequately buffered as determined by the County.
The closest residences to the facility are more than 500' to the north and northeast. All parcels adjacent to the facility are zoned Agricultural Production District and are vacant.
- (F) The special use poses only the minimum amount of risk to the public health, safety and welfare as set by federal, state or county regulation, whichever is the strictest.
A solar glare analysis was completed using the industry standard tool for studying glare impacts. North and southbound traffic on I-76, Co. Rd. 30, Co. Rd. W, East Street as well as glare from 74 observation points at nearby residences and public venues, and 2 flight paths from the Brush Regional Airport were evaluated in the analysis. The project will have minimal impacts on surrounding adjacent uses as the facility is unstaffed, generates no emissions, emits no light or discernible noise.
- (G) The special use proposed is not planned to be developed on a non-conforming parcel.
The parcel is conforming.
- (H) The applicant has adequately documented a public need for the project, all pertinent technical information, and adequate financial resources to implement it, and has paid all fees and review costs levied by the County for application processing and review.
US Solar has been working with Xcel Energy regarding a small generator interconnection agreement.
- (I) For any special use requiring a supply of water that the applicant has demonstrated a source of water which is adequate for the proposed use in terms of quantity and reliability and in the case of human consumption, quantity, quality, and reliability.
This project does not require a water supply.

The following conditions are recommended if the Special Use Permit is approved:

1. All necessary land use, environmental, and construction permits, approvals and authorizations will be obtained prior to the start of and during construction as required and may include, but are not limited to, land use permits, right-of-way (ROW) permits, road use agreements, access permits, oversize/overweight permits, grading permits, and stormwater permits.
2. All necessary plans, reports, permits, and certificates will be submitted prior to issuance of any building permit associated with the solar collector facility and may include, but are not limited to, interconnection/crossing agreements, final drainage & erosion control plan, signed and sealed geotechnical report, decommissioning plan, operations and maintenance plan, Liability Insurance Certificate, final locations for any laydown yard, a copy of the APEN issued by the Colorado Department of Public Health and Environment, Unanticipated Discovery plan, and glare analysis.
3. USS Camp Creek Solar LLC will comply with proposed decommissioning plan, any modifications/deviations from the proposed plan must be approved by the County.
4. The solar collector facility shall be enclosed by a security fence and be secured at all times. Emergency services must have access at all times.

5. Prior to the commencement of construction, USS Camp Creek Solar LLC will enter into a road use agreement for the use of any public road during construction which shall include the following:
 - a. A map showing which County roads will be used during construction.
 - b. A pre-construction baseline inventory of County roads to be used during construction to document their pre-construction condition, obtained by and paid for by the applicant.
 - c. A mitigation plan to address traffic congestion, control, and potential impacts to County roads to be used during construction. The mitigation plan shall also include any dust mitigation activities.
 - d. A requirement that the applicant to return any County roads to their pre-construction baseline condition.
 - e. A requirement to post financial security in an amount not less than one hundred fifteen percent (115%) of the estimated cost to complete all road restoration, in the form of an irrevocable letter of credit or cash escrow. Cost estimates shall be provided by a licensed Colorado engineer. Upon preliminary acceptance of the restored public road, the County shall release all but fifteen percent (15%) of total actual costs of restoration of the public roads, so long as USS Camp Creek Solar LLC is not in default of any provision of the public improvements agreement. The County shall inspect the restored roads and USS Camp Creek Solar LLC shall pay to the County the cost incurred by the County in conducting such inspections. These costs shall be due and payable upon demand of the County. USS Camp Creek Solar LLC shall be responsible for correcting or properly completing the restoration.
 - f. The residual fifteen percent (15%) retained by the County shall act as security for USS Camp Creek Solar LLC's guarantee that the restoration remains free of defect during a two year warranty period. USS Camp Creek Solar LLC may at any time during the preliminary acceptance or warranty period offer to provide a substitute or supplemental form of financial security to that security as originally posted with and/or retained by the County. The County may accept substitute or supplemental forms of security in its sole discretion.
6. The project area shall be reclaimed and/or reseeded as soon as practicable but no later than six months after USS Camp Creek Solar, LLC has completed construction, unless the County Planning Administrator grants an extension for demonstrated good cause.
7. Construction occurring within a ¼ quarter mile of any residence shall not commence earlier than 7 a.m.
8. USS Camp Creek Solar LLC shall prevent the existence of any nuisances by way of its construction activities. All trash, litter, construction waste and any potentially hazardous materials shall be disposed of properly off-site. If the County determines that a nuisance exists and the nuisance is not abated or an abatement plan is not submitted to the satisfaction of the County, the County may, upon thirty (30) days' notice under this Agreement, draw upon the Performance Guarantee to pay the cost and expenses of abating the nuisance. The decision to draw on the Performance Guarantee shall be within the sole discretion of the County.

9. USS Camp Creek Solar LLC shall comply with all applicable law and regulations related to safety and emergency management during construction and on-going operations.
10. USS Camp Creek Solar LLC shall be responsible for the payment of all costs and fees incurred by the County associated with this Permit. The County shall invoice USS Camp Creek Solar LLC for costs and fees and payment will be due by USS Camp Creek Solar LLC within thirty (30) days of the date of the invoice. Failure to pay may result in enforcement actions by the County.

Nicole Hay,
Morgan County Planning Administrator

ORIGINAL SUBMITTAL

Original Application

Right to Farm

Representative Letter



MORGAN COUNTY PLANNING
ZONING & BUILDING DEPT.
231 Ensign, P.O. Box 596
Fort Morgan, Colorado 80701
PHONE (970)542-3526
FAX (970)542-3509

EMAIL: permits_licensing@co.morgan.us

PERMIT # SU2023 - 0011

Date Received 4 / 20 / 23 Received By JS
App Fee \$5000 Ck/CC #: 2031 Paid 4 / 21 / 23
Minor Amend Fee: \$ CK/CC #: Paid / /
Recording Fee \$ Ck/CC #: Paid / /
PC Date: / / BOCC Date: / /
100 Year Floodplain? Y/N Taxes Current? Y/N

SPECIAL USE PERMIT APPLICATION

(Also to be used as application for Amendments to Existing Special Use Permits)

Landowner **MUST** Sign Application and Right to Farm Policy

APPLICANT

Name USS Camp Creek Solar LLC
Address 100 N. 6th St., Suite 410B
Minneapolis, MN 55403
Phone (847) 400-7156
Email ryan.magnoni@us-solar.com

LANDOWNER

Name James A. Hastings & Lacey B. Hastings
Address 34428 Rd. W.
Hillrose, CO 80733
Phone (N/A)
Email N/A

BRIEF DESCRIPTION OF APPLICATION

Proposed 2.19MWac community solar garden on approximately 12.1 acres.

PROPERTY LEGAL DESCRIPTION

Address (if available):

See attached Title Commitments and Deed

S: 15 T: 4N R: 55W SE & 1/2 NE 1/4 NE 1/4
Parcel #: 103 - 515 - 000 - 015
Subdivision: N/A

Property Size 39.795 (sq. ft. or acres)
Zone District: A
Lot #(s): N/A

Is property located within 1320' (1/4 mile) of a livestock confinement facility? Y/N

SEE REQUIRED ATTACHMENT LIST ON BACK OF THIS PAGE.

INCOMPLETE APPLICATIONS WILL NOT BE ACCEPTED OR PROCESSED.

SPECIAL USE PERMIT REQUIRED ATTACHMENT LIST

Fee:

☒ **Non-Refundable Application Fee**

**Additional fees and charges may be required pursuant to Section 2-160 of Morgan County Zoning Regulations*

Project Narrative: ☒ **Narrative— Including the following:**

- ☒ Project Description
- ☒ Purpose of request
- ☒ How this proposal complies with the Morgan County Comprehensive Plan
See: <https://morgancounty.colorado.gov/sites/morgancounty/files/Comprehensive-Plan-2008.pdf>
- ☒ How this project/proposed use meets the criteria for Special Use Permit pursuant to Sec. 2-395 of the Zoning Regulations
- ☒ How the project/proposed use meets any specific criteria related to the project/proposed use. *See Morgan County Zoning Regulations Chapter 4-Supplementary Regulations, including but not limited to: Campgrounds, Livestock Confinement, Kennels, Outdoor Shooting Ranges, Home Occupations, Oil and Gas, Mobile Home Parks, Wireless Service Facilities, Solar, Wind and BESS*
- ☒ How project will relate to or impact existing adjacent uses
- ☒ All off-site impacts and proposed mitigation measures
- ☒ Development or implementation schedule of project
- ☒ Proposed length of time the permit, if applicable
- ☒ Discussion of any public improvements required to complete the project

Environmental Impacts: ☒ Discuss any environmental impacts the Special Use will have on the following and the proposed mitigation measures:

- | | | | |
|--------------------------------------|-----------------------------------|--|--|
| <input type="checkbox"/> Air Quality | <input type="checkbox"/> Dust | <input type="checkbox"/> Existing Vegetation | <input type="checkbox"/> Land Forms |
| <input type="checkbox"/> Noise | <input type="checkbox"/> Odor | <input type="checkbox"/> Storm Water Runoff | <input type="checkbox"/> Water Resources |
| <input type="checkbox"/> Wetlands | <input type="checkbox"/> Wildlife | <input type="checkbox"/> Visual Amenities | <input type="checkbox"/> Other _____ |

Map & Plans: ☒ **Special Use Map** meeting the requirements of Sec. 2-420 and any specific map requirements for the proposed use including but not limited to: *Campgrounds, Livestock Confinement, Kennels, Outdoor Shooting Ranges, Home Occupations, Oil and Gas, Mobile Home Parks, Wireless Service Facilities, Solar, Wind and BESS. Sample Map attached to application for reference*

☒ **Drainage/Run-Off Control Plan** may be required if the Planning Administrator determines that the use or building meets one of the following criteria:

- (1) The accessory use or building may have a drainage impact on adjacent properties;
- (2) The accessory use or building may have a drainage impact on adjacent right of ways;
- (3) The accessory structure is 5000 square feet or larger.

☒ **Decommissioning Plan** [Wind, Solar, BESS]

☒ **Geotechnical Report** [Wind, Solar]

☒ **Maintenance Statement** [Wind, Solar, BESS]

☒ **Water and/or Wind Erosion Control Plan** [Wind, Solar]

☐ **Fire Mitigation Plan** [BESS]

☐ **Specification Sheet** [BESS]

☐ **Emergency Operation Plan** [BESS]

Ownership: ☒ **Current title insurance commitment (last 6 months)**

☒ **Mineral Rights Holders Notification**

☐ **Notice to FFA & Approval Letter** [Wind]

☐ **Notice to Operator of Communication Link (if applicable)** [Wind]

☒ **Proof of current paid taxes**

Utilities/Access: ☒ **Water tap (Engineering Report from Quality Water or proof of access to a well)**

☒ **Sewer (Septic Permit, Will Serve Letter from NCHD or proof of other public system)**

☒ **Electric (Electric bill or letter of commitment from electricity provider)**

☒ **Driveway Permit from CDOT or Morgan County Road & Bridge (If required by staff)**

☒ **Ditch Company- Proof of contact if there is a ditch on or next to subject property**

☐ **Architecture Control Approval (if applicable)**

☒ **Utility Interconnection or Crossing Certification** [Wind, Solar]

☒ **Road Agreement** [Wind, Solar]

☐ **Electrical Diagram** [BESS]

Vested Rights: ☐ **Vesting Rights** (Optional). If applying for vested rights with special use application, the following must be submitted:

- ☐ Period of time Vesting Rights are requested
- ☐ Development schedule including timeline and phases
- ☐ Reason for request
- ☐ Other pertinent factors concerning the development
- ☐ Additional application fee for vesting rights application

Miscellaneous: ☒ **Right to Farm Policy** signed by Landowner(attached)
☒ **Liability Insurance for Solar, Wind and/or BESS projects**

☒ 1 # Paper Application sets

☒ 1 Digital Copy of Application (One sided only)

☐ **Posted Public Notice Verification:** This will be completed at a later date in accordance with Morgan County ordinance.

☐ Notarized affidavit with photographs from a distance & close-up

This must be submitted PRIOR to Planning Commission hearing and PRIOR to Morgan County Board of Commissioners hearing

☐ **Additional Information required by staff:**

APPLICANT & LANDOWNERS **MUST** SIGN APPLICATION ON NEXT PAGE

APPLICANT & LANDOWNER'S STATEMENT

I certify that the information and exhibits I have submitted are true and correct to the best of my knowledge.
Application must be signed by landowners as shown on title insurance/commitment.

[Signature]

Applicant Signature

3/24/23

Date

[Signature]

Landowner Signature

2-27-23

Date

Applicant Signature

Date

[Signature]

Landowner Signature

2/27/23

Date

MORGAN COUNTY RIGHT TO FARM POLICY / NOTICE

Morgan County is one of the most productive agricultural counties in Colorado. Ranching, farming, animal feeding, and all other manner of agricultural activities and operations in Morgan County are integral and necessary elements of the continued vitality of the county's economy, culture, landscape and lifestyle. Morgan County specifically recognizes the importance of agricultural operations as necessary and worthy of recognition and protection.

Landowners, residents and visitors must be prepared to accept as normal the effects of agriculture and rural living. These may include noise from tractors, equipment, and aerial spraying sometimes at night or in the early morning; dust from animal pens, field work, harvesting, and gravel roads; odor from animal confinement operations, silage and manure; smoke from ditch burning; flies and mosquitoes; the use of pesticides and fertilizers, including aerial spraying; and movement of livestock or machinery on public roads. Under the provisions of the State of Colorado's "Right to Farm" law (Section 35-3.5-101 and following, C.R.S.), all normal and non-negligent agricultural operations may not be considered nuisances.

Also public services in a rural area are not at the same level as in an urban or suburban setting. Road maintenance may be at a lower level, mail delivery may not be as frequent, utility services may be nonexistent or subject to interruption, law enforcement, fire protection and ambulance service will have considerably longer response times, snow may not be removed from county roads for several days after a major snow storm. First priority for snow removal is that school bus routes are normally cleared first.

Children are exposed to different hazards in a rural setting than they are in an urban or suburban area. Farm and oilfield equipment, ponds, and irrigation ditches, electrical service to pumps and oil field operations, high speed traffic, noxious weeds, livestock, and territorial farm dogs may present real threats to children. It is necessary that children's activities be properly supervised for both the protection of the children and protection of the farmer's livelihood.

All rural residents and property owners are encouraged to learn about their rights and responsibilities and to act as good neighbors and citizens of Morgan County. This includes but is not limited to obligations under Colorado State law and Morgan County Zoning Regulations regarding maintenance of fences, controlling weeds, keeping livestock and pets under control. There may be provisions of which you are unaware. For example, because Colorado is a Fence Law State, owners of property may be required to fence livestock out.

Information regarding these topics may be obtained from the Colorado State University Cooperative Extension Office, the County Planning and Zoning Department, and the County Attorney.

RECEIPT AND STATEMENT OF UNDERSTANDING

I hereby certify that I have received, read, and understood the Morgan County Statement of Policy and Notice regarding Right to Farm.

I further state that I am aware that the conditions of living in an unincorporated area are different than living in a town or city and that the responsibilities of rural residents are different from urban or suburban residents. I understand that under Colorado law that a pre-existing, non-negligent agricultural operation may not be considered a public or private nuisance.

To Be Signed by Landowner

James A. Hastings Lacey B. Hastings 2/27/23
Signature Date
James A Hastings Lacey B. Hastings
Printed Name
34428 Rd W
Address
Hillrose, CO 80733

May 23, 2023,

We James A. and Lacey B. Hastings will be out of town and will not be able to attend the Morgan County, CO Planning Commissions Meeting on June 12, 2023, at 7:00P.M. We James A. and Lacey B. Hastings authorize our son James Hastings to represent us, and our property located on parcel No. 103-515-000-015 in Morgan County, CO at the Morgan County, CO Planning Commissions Meeting at 7:00P.M. on June 12, 2023.

By: James A Hastings Date: 5/29/23
Name: James A. Hastings

By: Lacey B Hastings Date: 5/29/23
Name: Lacey B Hastings

TECHNICAL

Glare Report

Tax Account Statement

Application Fee Receipt



GLARE REPORT

USS Camp Creek Solar LLC

Morgan County, Colorado

May 12, 2023

PREPARED FOR:

US/SOLAR

PREPARED BY:

Westwood

Westwood

Glare Report

USS Camp Creek Solar LLC

Morgan County, Colorado

Prepared For:

USS Camp Creek Solar LLC
100 N 6th St., Suite 410B
Minneapolis, MN 55403

Prepared By:

Westwood Professional Services
12701 Whitewater Drive, Suite 300
Minnetonka, MN 55343
(952) 937-5150

Project Number: 0037064.00

Date: May 12, 2023

Executive Summary

USS Camp Creek Solar Project is a PV solar project consisting of approximately 9.7 acres of solar modules and equipment on an approximately 20-acres site located about 1/2-mile southeast of Hillrose, in Morgan County, Colorado. The purpose of this glare study is to predict glare impacts from the proposed project to nearby receptors including residences, routes, and airport flight paths using the web-based ForgeSolar GlareGauge analysis software.

Seventy-four fixed location receptors referred to hereafter as observation points (OPs) were assessed for this study (**Table 1 Exhibit 2**). They are derived from 48 residences or public venues located less than 1-mile from a proposed solar array. They were assessed for glare at up to two fixed heights, 5-feet, and 15-feet above ground level (AGL).

Airports assessed for glare include the Brush Regional Airport (7V5), located approximately 4.7-miles southwest of the Project. It has two flight paths (FPs). Each flight path extends out 2-miles from the end of the airport runway, along a 3-degree glide slope. No air traffic control towers (ATCT) were assessed for glare.

Five transportation routes were assessed for glare to drivers within less than 1 mile of the Project. They include segments of northbound and southbound Interstate-76, County Road (CR) 30, CR W, and East Street.

Table 1: Executive Summary Components Modeled for Glare

Total Number of Components in Camp Creek Solar Glare Analysis	
Observation Points (OPs)	74
Flight Paths (FPs)	2
Routes	5

This glare analysis used an average 6.5-foot array height. Solar panel tracker rows were modeled at three different rest angles (also referred to as stow angles) to determine if a rest angle change would minimize glare; a 0-degree rest angle (DRA) a 5-DRA and a 10-DRA were used.

The summary **Table 2** reports the number of residential OPs, Routes, and FPs receptors receiving the three categories of glare: red glare (*potential for permanent eye damage* [retinal burn]), yellow glare (*potential for producing an after image*), and green glare (*low potential for producing an after-image*) (**Figure 1**). Glare was only predicted at a 0-DRA compared to a 5-DRA or a 10-DRA.

This Project uses PV modules; they do not focus reflected sunlight. Therefore, PV modules do not produce red glare. PV modules being considered for this Project are manufactured to absorb as much light as possible rather than reflecting light thereby reducing yellow and green glare compared to other modules using reflecting and uncoated glass. This Project will use modules on a single axis tracker, so they follow the sun throughout the day. A single axis tracker system

generally produces less glare to receptors and provides more options to mitigate glare when it occurs compared to a fixed axis solar array system.

Table 2: Executive Summary Number of Receptors Receiving Glare

Summary for Camp Creek Solar Glare Analysis									
Number of Components with Glare	Green Glare			Yellow Glare			Red Glare		
	0 DRA	5 DRA	10 DRA	0 DRA	5 DRA	10 DRA	0 DRA	5 DRA	10 DRA
Observation Points (OPs)	15	-	-	-	-	-	-	-	-
Flight Paths (FPs)	1	-	-	-	-	-	-	-	-
Routes	1	-	-	-	-	-	-	-	-

- PV solar modules do not produce red glare because they do not concentrate reflected light.

Green glare is predicted to occur at 15 OP residence receptors and 1 route for approximately 5 or fewer minutes/day for a portion of the fall and winter, some just after sunrise and the others just prior to sunset if the array is set to a 0-DRA. Brush Municipal Airport (7V5) has two FPs, FP-25 and FP-07. FP-23 does not receive any glare when the arrays are modeled at a 0-DRA, 5-DRA, or 10-DRA. FP-07 receives 50 minutes of green glare/year from Array A and 47 minutes of green glare/year from Array B when modeled with a 0-DRA; no glare is predicted when modeled with a 5-DRA or a 10-DRA. No yellow glare is predicted at FP-25 or FP-07 from either Array A or Array B at 0-DRA, 5-DRA, or 10-DRA. Since the project is not located on a federally obligated airport, this Project complies with the Federal Aviation Administration (FAA) glare guidance 2021 (**Appendix C**).

Yellow glare is not predicted to occur at either of the two arrays at 0-DRA, 5-DRA, or 10-DRA.

Data are summarized in **Appendix A** and details are in **Appendix B**. The model calculates glare values of minutes/year are using line of site elevations and does not account for existing vegetation or structures that would reduce the visibility of glare from arrays by physical screening.

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Exhibits

- Exhibit 1: Site Location Map and ATCT and Flight Paths
- Exhibit 2: Glare Study Array Layout and Receptors

Appendices

- Appendix A: Glare Study Summary Tables
- Appendix B: Gare Study Model Detail Results
 - 10-Degree Rest Angle
 - 5-Degree Rest Angle
 - 0-Degree Rest Angle
- Appendix C: FAA 2021 Glare Policy Compliance

1.0 Purpose

The purpose of this glare report with the attached exhibits and appendices is intended to be used for due diligence for reporting qualitative and quantitative glare impacts to modeled receptors adjacent to the USS Camp Creek Solar LLC Project (Project). USS Camp Creek Solar LLC contracted Westwood Professional Services (Westwood) to report glare associated with the Project.

Additionally, this study answers the following questions:

1. Will glare from the Project be visible to airport air traffic control towers and flight paths?
2. Will glare from the PV modules be visible to residents or receptors near the Project?
3. Will glare from the PV modules be visible to routes near the Project?
4. If glare is visible, what is its duration and hazard category?

Study results are summarized in Section 4 and **Appendix A**. Detailed data are presented in **Appendix B**.

2.0 Glare Study Methodology

2.1 Mapping Methodology

Westwood reviewed the proposed Project layout provided by the design engineers, the area topography, and aerial photographs of the area for use in modeling glare. Public maps were also used for identifying nearby residences, public roads, airport flight paths and air traffic control towers (ATCT), which will be modeled as receptors. Before glare modeling, the PV arrays were labeled and divided into sub-array areas when analysis provides better detail or when arrays are greater than approximately 20-acres as shown in **Exhibits 1 and 2**.

2.2 Glare Modeling Methodology

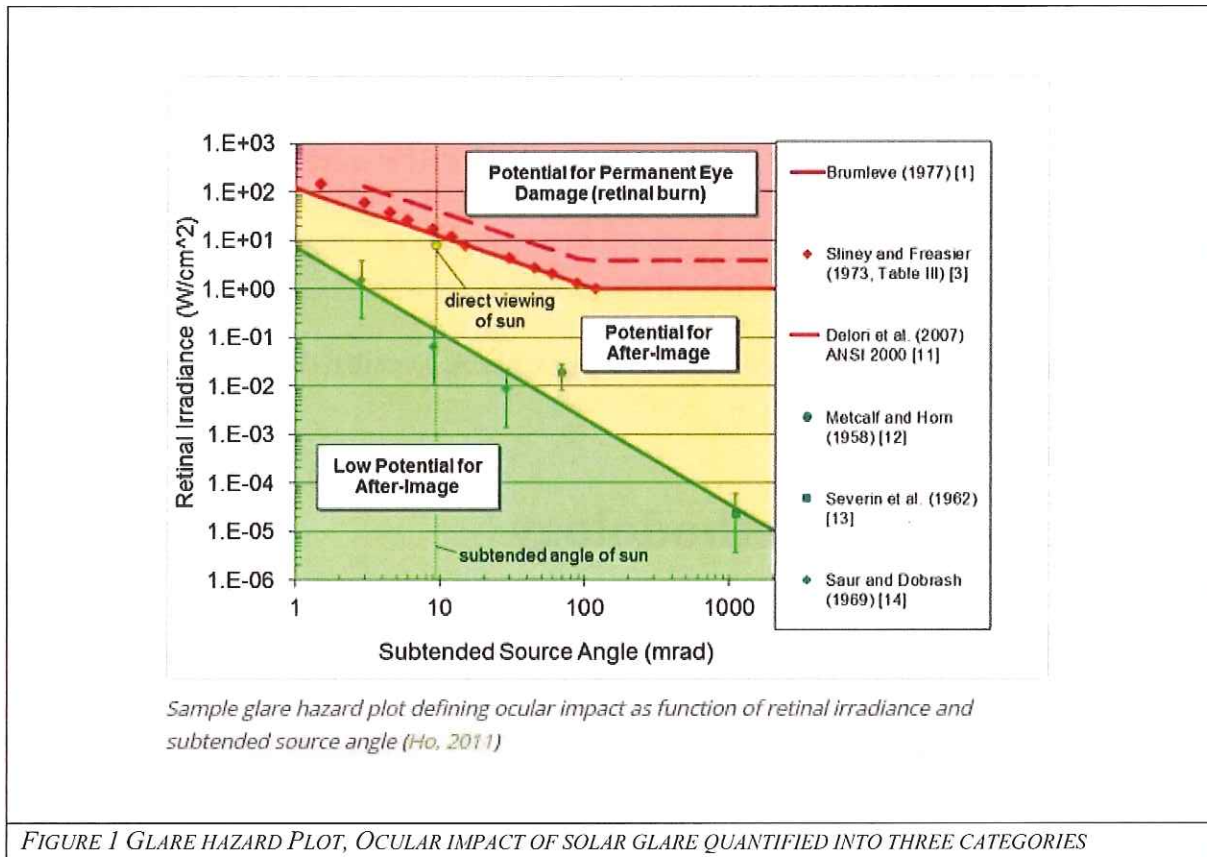
This report was prepared with the web-based ForgeSolar GlareGauge analysis software which uses the Solar Glare Hazard Analysis Tool (SGHAT). This technology was developed by Sandia National Laboratories; SGHAT algorithms were developed for analyzing flight paths and receptor points. The tool estimates when and where reflected solar glare could occur in one-minute intervals throughout the year from a modeled PV array. GlareGauge software uses an interactive ArcMap® or Google Earth® interface in conjunction with user-specified design parameters such as module dimensions, glass textures and coatings, rest angles, fixed axis or tracker systems and back tracking parameters.

GlareGauge is compatible with 2021 Federal Aviation Administration (FAA) glare guidelines.

If glare is predicted, the GlareGauge tool categorizes the glare hazard of PV arrays and receptors. Ocular hazards are separated into categories of decreasing severity from a potential temporary

after-image to retinal burn. GlareGauge produces a three color-coded display of the potential for glare to result in an ocular impact (Ho, 2011) (**Figure 1**).

- Red - potential for permanent eye damage (retinal burn)
- Yellow - potential for temporary after-image
- Green - low potential to cause after-image (flash blindness)



Red glare causing retinal burn is not expected with this PV Project since the proposed PV modules do not focus or concentrate reflected sunlight. Yellow glare, as an example of “after image” is experienced when seeing a camera flash in the eye. Following the flash, the bright light temporarily appears visible with or without eyes closed. Green glare is less intense and has a “low potential for an after” image as yellow glare does. Yellow and green categories assume a typical blink response in the observer.

The ocular impact of glare is visualized with the Glare Hazard Plot. This chart displays the ocular impact as a function of glare subtended source angle and retinal irradiance. Each minute of glare is displayed on the chart as a small circle in its respective hazard zone as shown as an example (**Figure 16 Upper Right Panel**). For convenience, a reference point is provided which illustrates the hazard from viewing the sun without filtering, i.e. staring at the sun. Each plot includes predicted glare for 1 PV array and 1 receptor.

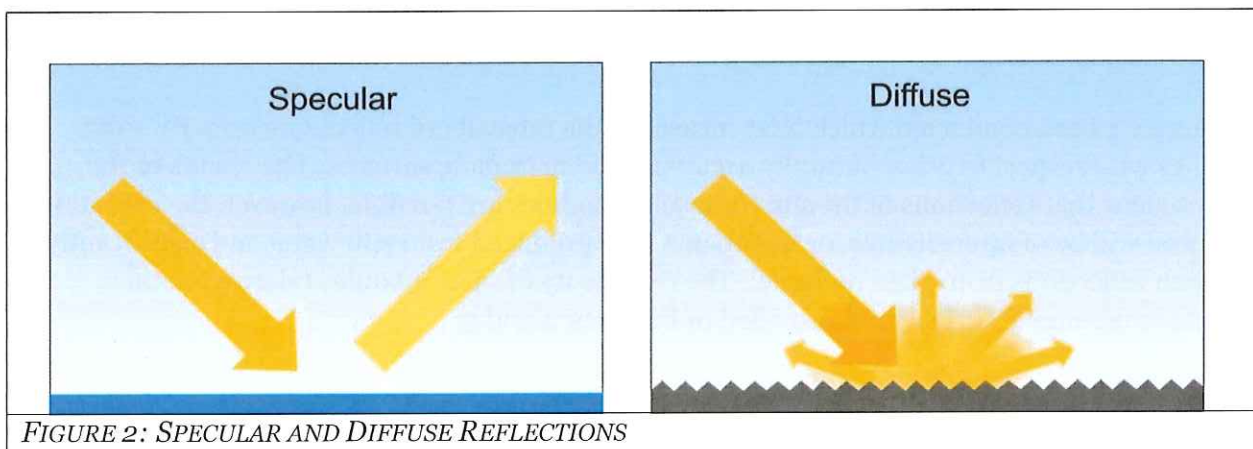
2.3 General Discussion of Reflection

With growing numbers of solar energy facilities being proposed and installed throughout the United States, the potential impact of sunlight reflection (the return of light from a solar module surface) producing glint (momentary flash of reflected sunlight) and glare (long duration of reflected sunlight) from PV modules (solar panels) is receiving increased attention as a potential nuisance to neighboring residential properties or potential hazard or distraction for vehicle drivers, pilots, and air-traffic control personnel at nearby airports. This document will assess glare to receptors identified.

A common misconception about solar PV modules is that they inherently cause or create a lot of glare, posing a nuisance to neighbors and a safety risk for pilots. While in certain situations the glass surfaces of solar PV modules can produce glare, light absorption, rather than reflection, is central to the function of a solar PV module. PV modules absorb solar radiation that is converted to electricity. Solar PV modules are constructed from high transmission, low iron glass and are covered with an anti-reflective (AR) coating. Modern solar PV modules reflect as little as two percent of incoming sunlight, about the same as water and less than soil or even wood shingles (Sandia 2014).

2.4 Reflection Type from Solar Modules

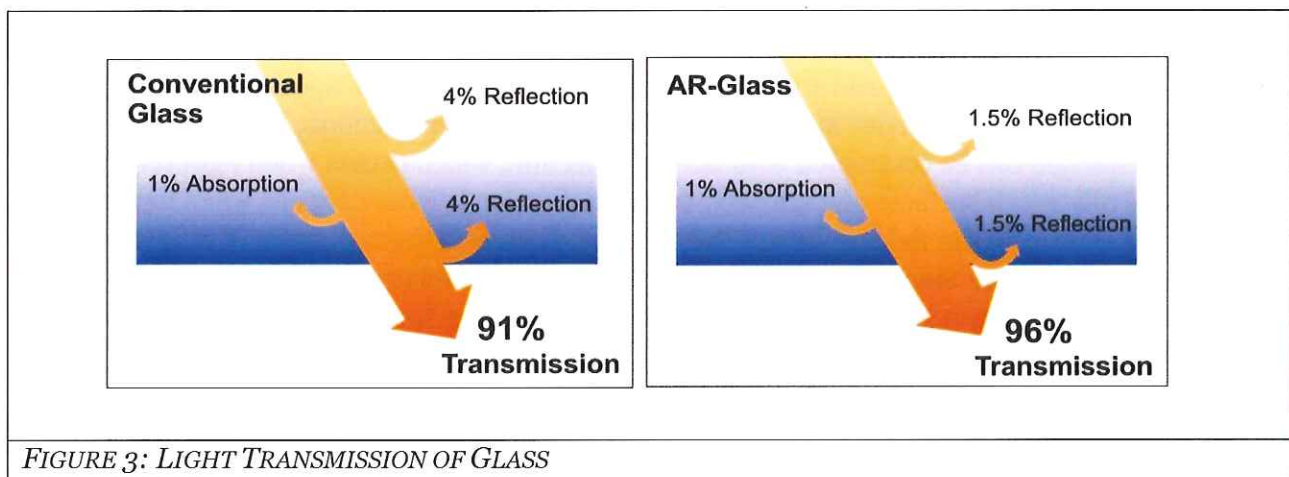
Smooth surfaces such as glass and still water exhibit specular reflection. Specular reflection is when light hits the surface at one angle and is reflected in another direction, like a mirror. Specular reflection can be contrasted with diffuse reflection, which occurs when light reflects off microscopically rough surfaces and scatters. Diffuse reflection is what happens when light hits virtually everything in our field of vision. The difference between the two types of reflections is illustrated in **Figure 2**. Since solar modules are flat and have a relatively smooth surface, most of the light reflected is specular, meaning that incident light from a specific direction is reradiated in a different direction.



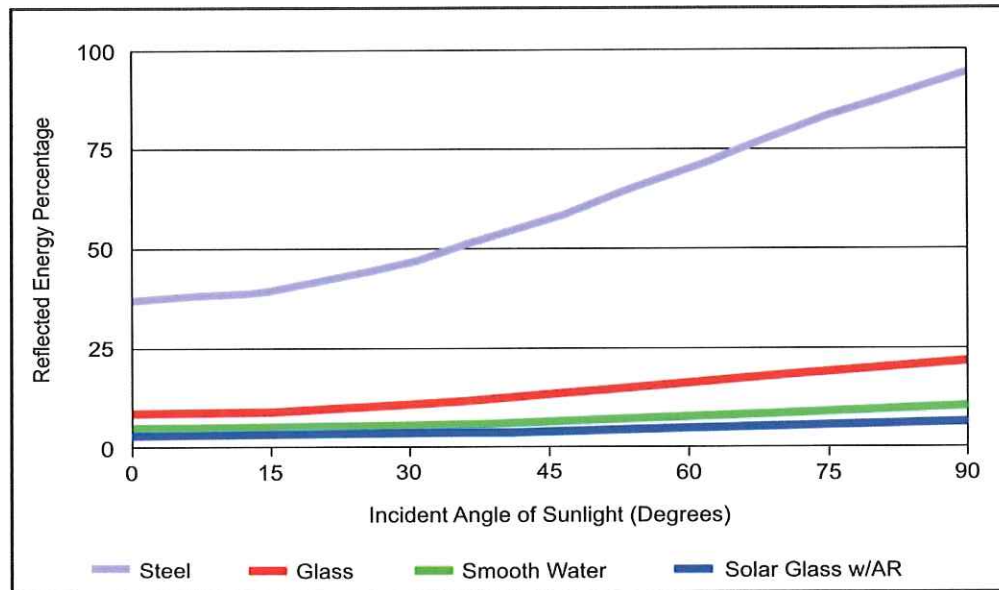
When the sun is reflected on a smooth surface, it can result in glare for those who are on the receiving angle. In both cases, the light reflected is diminished by having first hit the substrate that reflected it—unless that surface is a perfect mirror. When the sun is the original source of the light reflected off a reflective surface, the time and position at which glare might occur depends on the original position of the sun in the sky, the module angle, and its relation to the location of the viewer.

2.5 Relative Reflectance of Modules Compared to Other Surfaces

Solar modules are designed to absorb light, and accordingly reflect only a small amount of the sunlight that falls on them compared to most other everyday objects. Most notably, solar modules reflect significantly less light than flat water (e.g. lakes, ponds) or standard window glass. The solar panel glass reflects only a small portion of the light that falls on it (about 2 to 4 percent), depending on whether it received an AR coating. To increase solar panel efficiency and power output, most of the solar PV modules in use today are treated with an AR coating. An example of how anti-reflective technology can increase light transmission in glass and reduce overall reflection is provided in **Figure 3**. Standard low-iron glass reflects approximately 8 percent of light, whereas high transmission, low iron AR-glass modules reflect a total of approximately 2 to 3 percent of the light.

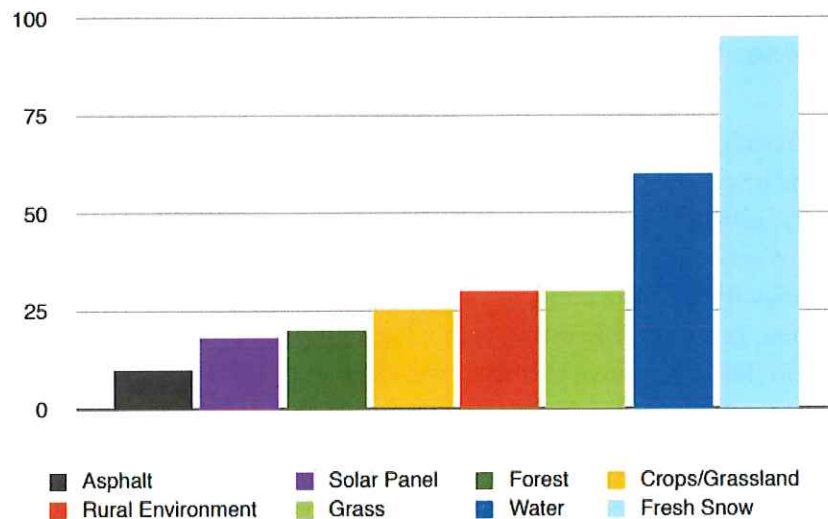


Studies have been conducted which have measured the intensity of reflections from PV solar modules with respect to other naturally occurring and manmade surfaces. The results of the studies show that reflections of the sun from solar modules are possible; however, the reflections produced will be of intensity like, or less than, those produced from still water and significantly less than reflections from glass and steel. The reflectivity of solar modules relative to other natural or manmade surfaces are provided in **Figures 4** and **5**.



(Source: Capital Solar Farm Visual Impact Assessment, 2010)

FIGURE 4: ANALYSIS OF TYPICAL MATERIAL REFLECTIVITY WITH SUNLIGHT ANGLE



Source: (Capital Solar Farm, 2010)

FIGURE 5: ALBEDO FOR VARIOUS COMMON SURFACES

One measure of reflectivity is albedo, the ratio of solar radiation across the visible and invisible light spectrum reflected by a surface. Albedo varies between 0, a surface that reflects no light, and 1, a mirror-like surface that reflects all incoming light. Solar PV modules with a single AR coating have a reflectivity of between 0.03 and 0.18. Common sand has an albedo between 0.15 and 0.45 and agricultural vegetation has an albedo between 0.18 and 0.25. This diffuse

reflectivity measure is consistent with the intent of solar PV modules to absorb the majority of solar energy for conversion to electricity.

2.6 Important Considerations

When reflection occurs, unless it is seen by a receptor, glare will not pose a concern because it is reflected into space. Before considering the mathematics of sunlight reflectivity, it is important to understand several fundamental limitations concerning the extent to which glare might be visible to nearby residences. First, for glare to appear, the observer must be able to see the tops of the PV modules. For this to occur, at a minimum, the receptor would need to be at a height sufficient to slightly look down at the tops of the solar modules.

Second, since the panels will be mounted on single axis tracking systems, the surface of the panels will always try to follow the position of the sun (but fixed in a single axis). Due to this property, steep glancing angles are minimized as compared to a non-tracking system.

Lastly, glare is avoided when vegetation or other impediments are located between the observer and the solar modules. A home, for example, may be in the general area of a site with solar PV modules. That house, however, is at no risk of exposure to solar glare if other buildings or trees stand between it and the solar modules.

2.7 Overview of Sun Movements and Relative Reflections

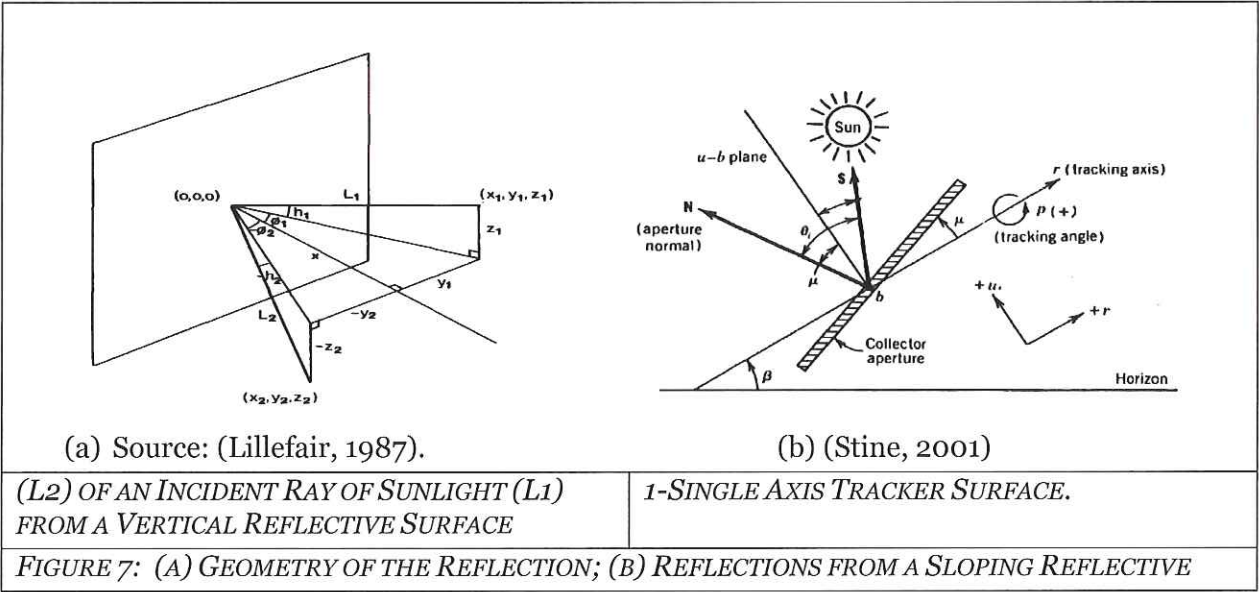
The basic concept to understand in any discussion of glare elevation is that the angle of incidence is always equal to the angle of reflectance. The empirical inquiry is then whether the potential observer is within the altitude of reflection given the distance of the observer from the solar PV panel. At any angle of reflectance, as a potential observer is further and further away from the solar PV panel, the elevation of the reflected sunlight (i.e., any glare) is more likely to be above the observer and, thus, not seen. In contrast, at a high angle of reflectance, the elevation of reflected sunlight will likely be above the observer—even at short distances.

Given the basic principle of light reflectivity, evaluating the angle of reflectance from a solar PV panel must begin with a determination of the altitude of the sun (in degrees) relative to the ground. The “solar altitude” is the angle of the sun in degrees above or below the horizon. As such, the most important consideration when calculating light reflectivity is not the horizon, but the angle at which the solar panel is mounted relative to the horizon.

As the angle of the sun in relation to the solar PV panel increases, the angle of reflection will decrease, and the altitude of reflection will increase. The altitude of the sun differs based on a number of different factors: the time of day, the season of the year, and the latitude at which the solar PV panel is located.

2.9 Sunlight Geometry

The determination and characterization of the geometry of incident and reflected light is a mathematical process that is based on angles and vectors in three-dimensional coordinate systems. Light reflected from a surface is described in **Figure 7a & b** and shows that reflected light is symmetrical about the normal of the surface. All methods used to calculate the path of reflected rays assume this symmetric condition.



2.10 Characteristics of PV Panel Configuration and Perceived Glare

With respect to assessing the impacts of reflected sunlight associated with PV modules for the proposed Project, the following assumptions apply:

1. Perceived glare is based on a line of sight from the reflective surface without accounting for any existing or planned visual screening from vegetation or buildings (worst case scenario).
2. The magnitude and duration of glare reflections are related to the height of the observer. An average eye height of 5 and 15 feet were used for observers at a first floor and second floor residence (Residential OPs), respectively, and an average eye height of 3.5 feet was used for observers in passenger vehicles (Routes). When the height of the observer is less than the module height and the landscape is flat, only one reflecting rank of PV modules will be visible at a time.
3. Stationary receptors that are below the top height of the PV modules will only see glare from those modules whose reflective surfaces are visible from that location. The glare will move as the sun moves until the azimuth and elevation of the sun's rays are such that reflections are no longer received at the stationary receptor.
4. Because the orientation of each rank is the same, each rank will reflect glare at the same

angle for the same time increment and given azimuth and elevation angle of the sun. Thus, if a car with the observer at a height below the highest point of the PV rank observes a solar reflection, the same reflection at the same relative location will be observed as the car proceeds parallel to the PV ranks.

5. As the height of the stationary receptor increases above the height of the PV rank, progressively more of the area of adjacent ranks will be observed. At low heights, the majority of the PV panel area of successive ranks is blocked, but as heights increase progressively more of the reflective area of the full array becomes contributing.

2.11 Definitions

The following definitions are used to as terms common in glare analysis.

Eye level Height above Ground – User input to modify/correct observer's (receptor's) elevation above ground.

Flight paths (FP) parameters were calculated using GIS software and aerial photographs of the Project. Location, elevation, and a calculated field of receptors were used. A 50-foot threshold height and 3-degree glide path above ground was used for receptor height. These parameter units are in feet (**Figure 14 and Appendix B**).

Glare and Glint Glare is defined as a harsh bright light. Glare is generally associated with stationary objects, which, due to the slow relative movement of the sun, reflect sunlight for a longer duration. Glint is defined as a momentary flash of light reflected off a moving source. A common example of glint is a flash of light reflected to your eye from a passing car. (Forge Solar, 2022)

The difference between glare and glint is duration. Industry-standard glare analysis tools evaluate the occurrence of glare on a minute-by-minute basis; accordingly, they generally refer to solar hazards as 'glare'.

Ground Elevation – Elevation of vertices above sea level. Values are input into the table once the vertex is located. This is considered the point's base elevation. This value is used to shape the reflective plane used to estimate glare.

Height above Ground – User input to modify/correct vertex elevation above ground. This is defined as 'PV array installation height above ground'. Since this Project will use a single axis tracker system the height varies as shown in **Figure 11**.

Latitude and Longitude – The geographic coordinates of the PV array boundary vertices were used to define the area covered by proposed PV array. Appendix B provides the coordinates of the perimeter and their map image which also correspond to PV arrays. GlareGauge creates a reflective plane using elevation values of the array for the glare assessment.

Maximum Tracking Angle – The maximum angle the panel will rotate in both the clockwise and counterclockwise directions from the zenith (upward) position. The maximum rotation limit currently under consideration is approximately $\pm 58^\circ$.

Module Surface Material – Type of PV material used and surface finish of panel. According to specifications from the module manufacturers, it was determined that the input Smooth Glass with an anti-reflective coating would be the most representative option.

Offset angle of Module – The vertical offset angle between the tracking axis and the panel. No offset was selected for the single axis tracker.

Observation Points (OP) are the eye level of human observers at residences. They have height parameters calculated using GIS software and aerial photographs of the Project. A 5-foot eye height above ground was used for a person on a first-floor residence. A 15-foot height above ground was used for a person's eye level on a second floor.

Orientation of Tracking Axis – Orientation of the tracking axis in degrees, measured clockwise from true north. In this case the value was determined to be 180° .

Rated Power (kW) – kW power of solar PV plant. No rated power was selected for the proposed size of the solar arrays because the area of panel coverage is the primary factor at this site.

Reflectivity of PV module – The near-normal specular reflectance of PV glass (e.g., with AR coating) can be as low as 2%, the reflectance can increase as the incidence angle of the sunlight increases (glancing angles). This number is based in part on the array parameters.

Routes are segments of public roads modeled for glare. The receptor is a person in a passenger vehicle on the route with a 3.5-foot eye height above ground which is based upon Federal Highway Administration guidelines. (AASHTO, 2018) These parameter units are in feet (**Appendix B**).

Slope error – Mirror-like surfaces that produce specular reflections will have a slope error closer to zero, while rough surfaces that produce more scattered (diffuse) reflections have higher slope errors. Based on typical values for the module types under consideration, a value of 8.43 mrad was used.

Tilt of Tracking Axis – Elevation angle of the tracking axis in degrees, where 0° is facing skyward and 90° is facing horizontally. The modules rotate about the tracking axis. 0° was selected as the modules will be facing up.

Total Elevation – Is calculated after adding the ‘Ground Elevation’ and ‘Height above Ground’. All units are in feet.

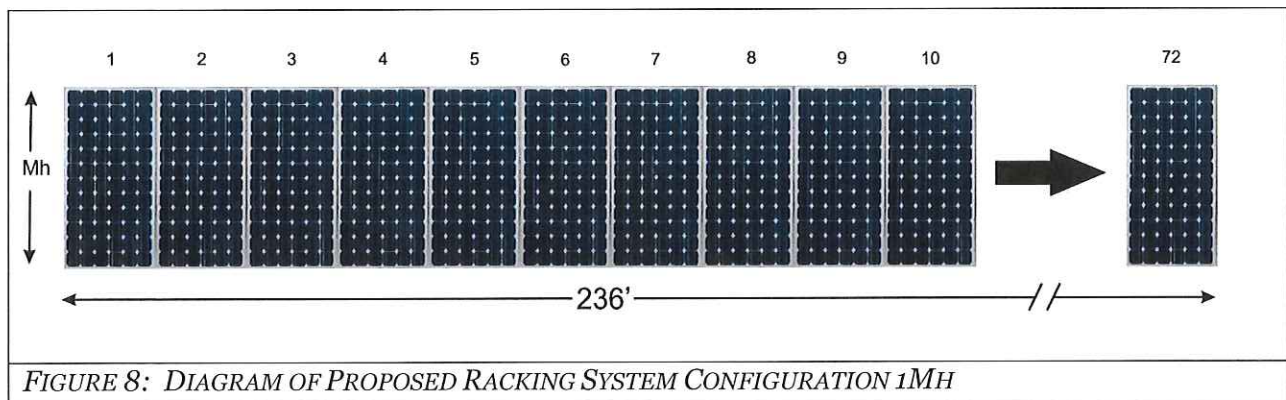
3.0 Project Locations and Descriptions

USS Camp Creek Solar Project Area consists of approximately 20-acres and is located in southeast of Hillrose in Morgan County, Colorado (**Exhibit 1 and 2**).

The Project Area is proposed on agricultural land. Surrounding land is also agricultural with rural residents located in the area and Hillrose also has several residences. East and south of the Project Area is Interstate 76.

Photovoltaic (PV) modules (solar panels) will be attached to single axis solar trackers with electrical inverters and associated racking/foundations, collection lines, and access roads. It is separated into arrays as shown in (**Exhibit 2**).

The modules will be divided in tracker rows (ranks) and arranged in a series of irregular rectangular units (arrays). Modules will be stacked in a 1 or 2 module height (Mh) configuration in a portrait mode on a single-axis tracker system (**Figure 8**).



Rows of modules will be constructed along a north-south orientated axis. Trackers will rotate each row (rank) daily east to west following the sun as shown in the examples. (**Figures 9 & 10**).

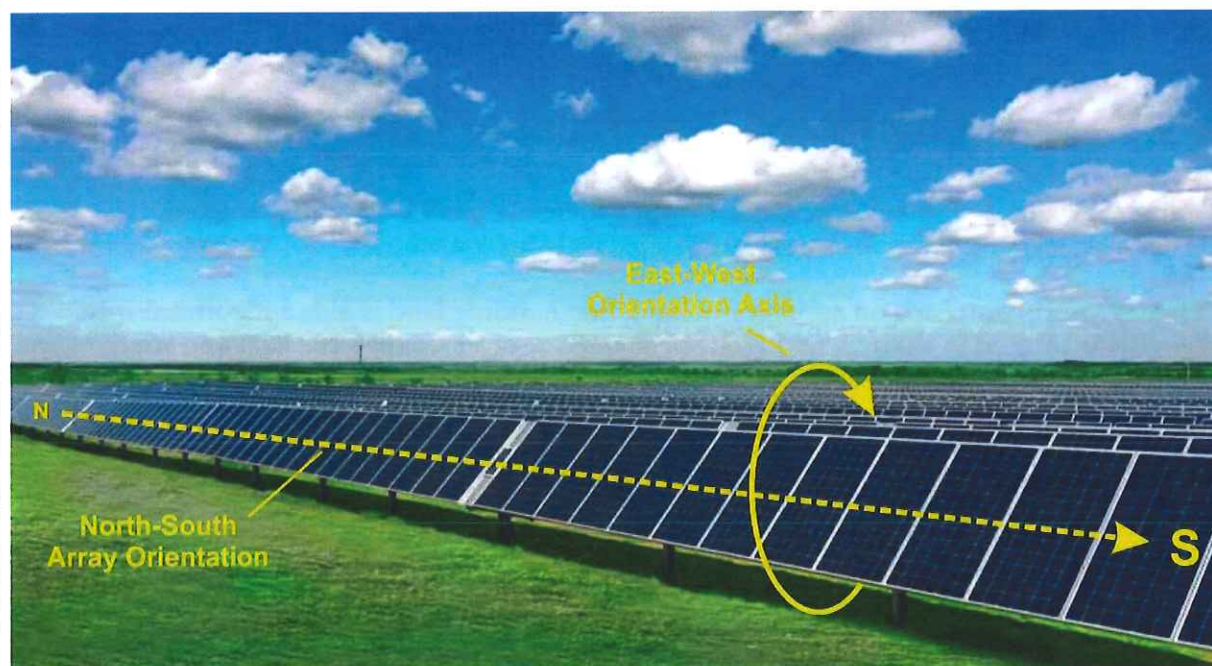
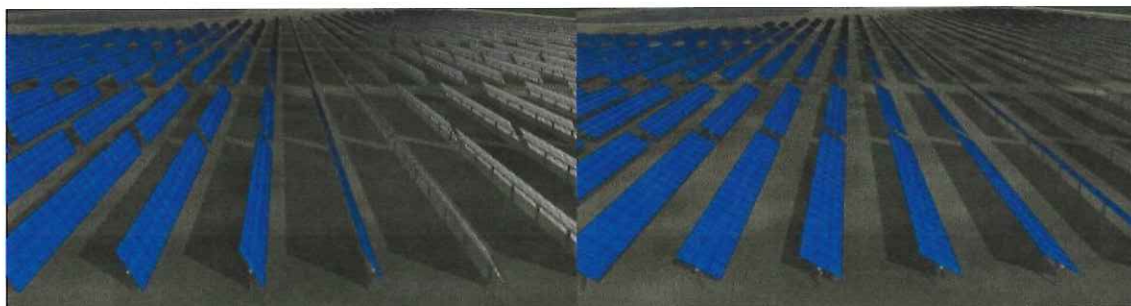
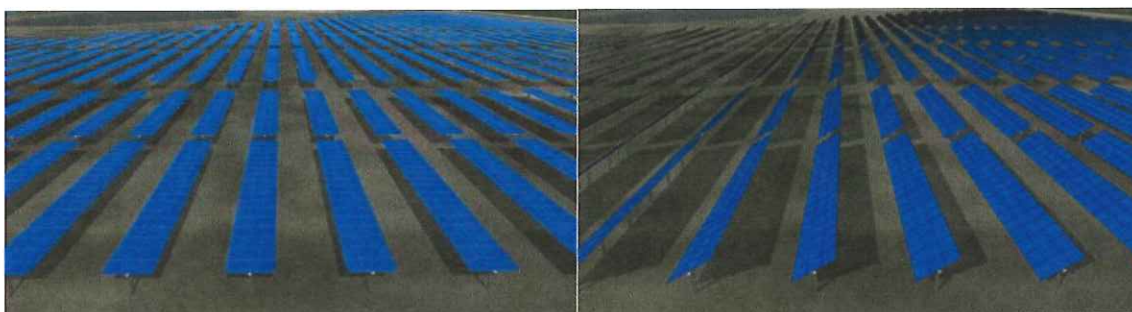


FIGURE 9: EXAMPLE OF TYPICAL TRACKER ARRAY ROTATION AND ORIENTATION



(a) at 9:00 AM

(b) at 10:00 AM

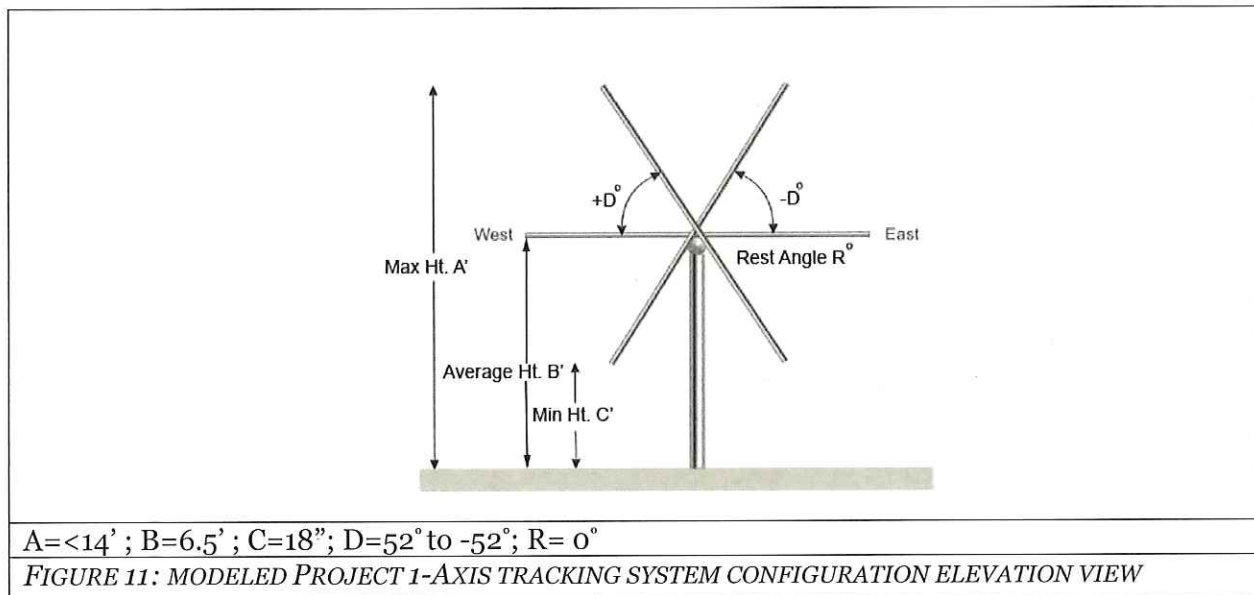


(c) 12:00 PM

(d) 2:00 PM

FIGURE 10: EXAMPLE OF SHADOWS FROM A PV TRACKER SYSTEM CONFIGURATION ON DECEMBER 21ST, THE WINTER SOLSTICE IN THE NORTHERN HEMISPHERE

The dimensions and specifications of the modeled 1-Axis tracking system elevation used in this study are shown in (Figure 11).



3.1 Modeled Observation Points at Residences and Facilities

Locations and elevations of the receptors modeled near the Project arrays include 37 residence OPs each modeled at two elevations, 5-feet, and 15-feet, to simulate an assumed first and second level making 74 OP receptors **Table 3**. They are also mapped in **Exhibit 1 and 2**. An example of an array modeled, and adjacent residence and route receptors is shown in **Figure 12** and the ATCT is depicted in **Figure 13**.

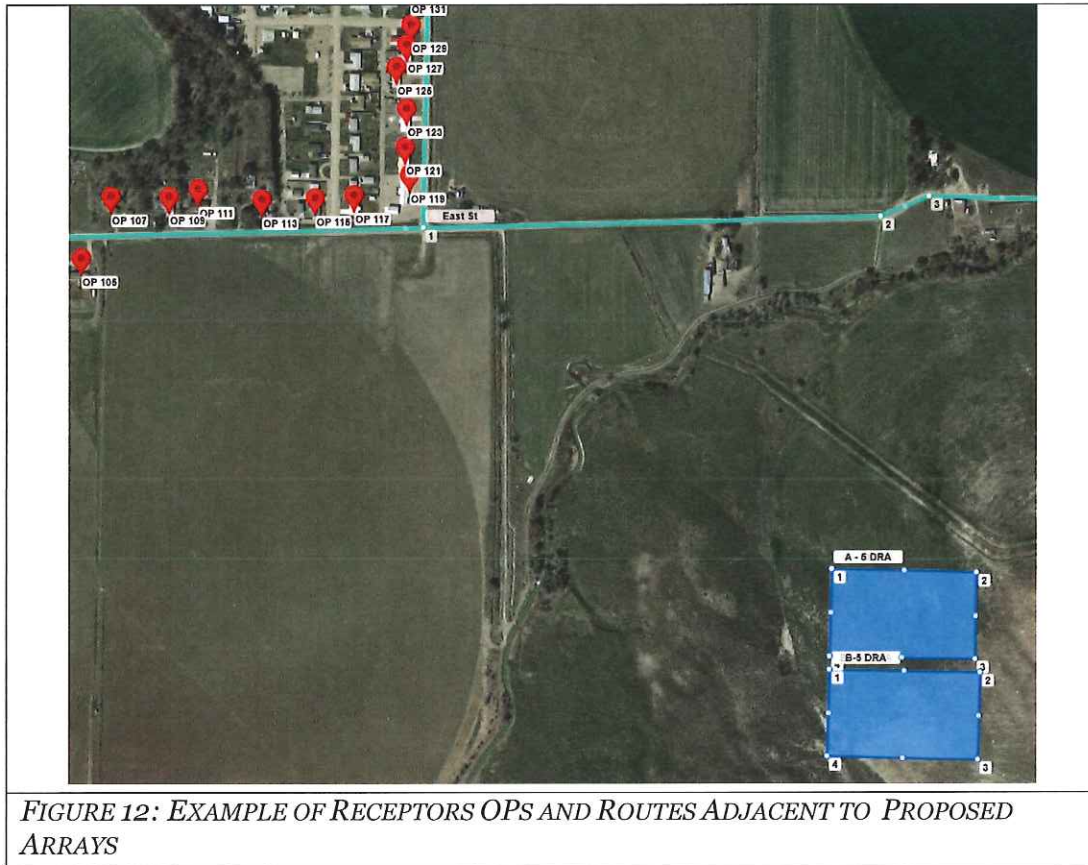


Table 3: Location of Modeled OPs

Floor	Residence OP ID	Latitude	Longitude	Elevation (ft)
First Floor	100	40.32112698	-103.52472347	4,176
Second Floor	101	40.32112698	-103.52472347	4,176
First Floor	102	40.32116305	-103.52378495	4,175
Second Floor	103	40.32116305	-103.52378495	4,175
First Floor	104	40.32048896	-103.52306646	4,172
Second Floor	105	40.32048896	-103.52306646	4,172
First Floor	106	40.32116918	-103.52263575	4,175
Second Floor	107	40.32116918	-103.52263575	4,175
First Floor	108	40.32116845	-103.52179910	4,175
Second Floor	109	40.32116845	-103.52179910	4,175
First Floor	110	40.32124551	-103.52137547	4,176
Second Floor	111	40.32124551	-103.52137547	4,176
First Floor	112	40.32113229	-103.52045293	4,176
Second Floor	113	40.32113229	-103.52045293	4,176
First Floor	114	40.32114996	-103.51967202	4,176

Second Floor	115	40.32114996	-103.51967202	4,176
First Floor	116	40.32118366	-103.51911084	4,176
Second Floor	117	40.32118366	-103.51911084	4,176
First Floor	118	40.32140165	-103.51829749	4,178
Second Floor	119	40.32140165	-103.51829749	4,178
First Floor	120	40.32171197	-103.51836061	4,178
Second Floor	121	40.32171197	-103.51836061	4,178
First Floor	122	40.32213817	-103.51834130	4,175
Second Floor	123	40.32213817	-103.51834130	4,175
First Floor	124	40.32260143	-103.51849727	4,172
Second Floor	125	40.32260143	-103.51849727	4,172
First Floor	126	40.32284683	-103.51834591	4,171
Second Floor	127	40.32284683	-103.51834591	4,171
First Floor	128	40.32306685	-103.51827678	4,169
Second Floor	129	40.32306685	-103.51827678	4,169
First Floor	130	40.32349757	-103.51829233	4,169
Second Floor	131	40.32349757	-103.51829233	4,169
First Floor	132	40.32400998	-103.51833416	4,169
Second Floor	133	40.32400998	-103.51833416	4,169
First Floor	134	40.32452550	-103.51831898	4,169
Second Floor	135	40.32452550	-103.51831898	4,169
First Floor	136	40.32489679	-103.51853954	4,169
Second Floor	137	40.32489679	-103.51853954	4,169
First Floor	138	40.32542858	-103.51826459	4,172
Second Floor	139	40.32542858	-103.51826459	4,172
First Floor	140	40.32558655	-103.51825721	4,172
Second Floor	141	40.32558655	-103.51825721	4,172
First Floor	142	40.32599554	-103.51824958	4,173
Second Floor	143	40.32599554	-103.51824958	4,173
First Floor	144	40.32662875	-103.51828858	4,175
Second Floor	145	40.32662875	-103.51828858	4,175
First Floor	146	40.32700240	-103.51814656	4,174
Second Floor	147	40.32700240	-103.51814656	4,174
First Floor	148	40.32725607	-103.51819282	4,174
Second Floor	149	40.32725607	-103.51819282	4,174
First Floor	150	40.32763480	-103.51815078	4,172
Second Floor	151	40.32763480	-103.51815078	4,172
First Floor	152	40.32784093	-103.51817692	4,171
Second Floor	153	40.32784093	-103.51817692	4,171
First Floor	154	40.32826484	-103.51832842	4,173
Second Floor	155	40.32826484	-103.51832842	4,173

First Floor	156	40.32864740	-103.51863995	4,172
Second Floor	157	40.32864740	-103.51863995	4,172
First Floor	158	40.32080139	-103.51374118	4,186
Second Floor	159	40.32080139	-103.51374118	4,186
First Floor	160	40.32162527	-103.51065963	4,181
Second Floor	161	40.32162527	-103.51065963	4,181
First Floor	162	40.32117599	-103.51028790	4,182
Second Floor	163	40.32117599	-103.51028790	4,182
First Floor	164	40.32173235	-103.50136467	4,183
Second Floor	165	40.32173235	-103.50136467	4,183
First Floor	166	40.32154554	-103.50071129	4,188
Second Floor	167	40.32154554	-103.50071129	4,188
First Floor	168	40.32197058	-103.49990575	4,186
Second Floor	169	40.32197058	-103.49990575	4,186
First Floor	170	40.32269613	-103.49981936	4,180
Second Floor	171	40.32269613	-103.49981936	4,180
First Floor	172	40.30667685	-103.52256430	4,220
Second Floor	173	40.30667685	-103.52256430	4,220

3.2 Modeled Routes

The following routes adjacent to the Project were modeled for glare impacts. Each route used a receptor height of 3.5 feet for a driver's eye height of a passenger vehicles **Table 4**.

Table 4: Location of Modeled Routes

Road Name	Vertex	Latitude	Longitude	Elevation (ft)
Co Rd 30	1	40.30840910	-103.52801987	4,183
Co Rd W	1	40.32087476	-103.52527216	4,175
East St	1	40.32100865	-103.51810246	4,177
I-76 Southbound	1	40.30410751	-103.52320125	4,260
I-76 Northbound	1	40.30382737	-103.52284443	4,266

3.3 Modeled Flight Paths

As stated in a Federal Aviation Administration (FAA) Policy issued May 11, 2021 (Review of Solar Energy System Projects on Federally Obligated Airports), review is not applicable to proponents of solar energy systems located off airport property (FAA, 2021). Proponents are encouraged to consider ocular impact for proposed systems in proximity to airports with ATCTs. In such cases, solar energy system proponents should coordinate with the local airport sponsor. The Project is not located on Airport property.

Westwood reviewed airports in the vicinity of the Project, and one was identified. The Brush Municipal Airport (7V5) is located approximately 4.7-miles southwest of the Project. It has 2

flight paths, FP-07 and FP-25 and no ATCTS (**Exhibit 1**). The FPs were assessed for glare impacts as part of this study to address FAA compliance (**Figures 13, 14 & Exhibit 1 & Appendix C**). The FPs extend from the threshold at end of the runways for two miles (**Figure 14, 15 and 16**). The FPs were modeled with a threshold height of 50 feet AGL at the end of the runway; a 3-degree glide slope was used to simulate an average eye level for pilots is used in the Forge model.

Name: FP 25 Brush Airport
Description: None
Threshold height: 50 ft
Direction: 262.9 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg



Point	Latitude deg	Longitude deg	Ground elevation ft	Height above ground ft	Total elevation ft
Threshold	40.265040	-103.568397	4303.30	50.00	4353.30
2-mile point	40.268603	-103.530752	4330.90	575.80	4906.70

Name: FP 7 Brush Airport
Description: None
Threshold height: 50 ft
Direction: 83.3 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg



Point	Latitude deg	Longitude deg	Ground elevation ft	Height above ground ft	Total elevation ft
Threshold	40.263689	-103.583383	4268.90	50.00	4318.90
2-mile point	40.260331	-103.621060	4229.90	642.40	4872.30

Figure 13: Modeled Flight Path Examples Two-Mile Brush Municipal Airport (7V5)

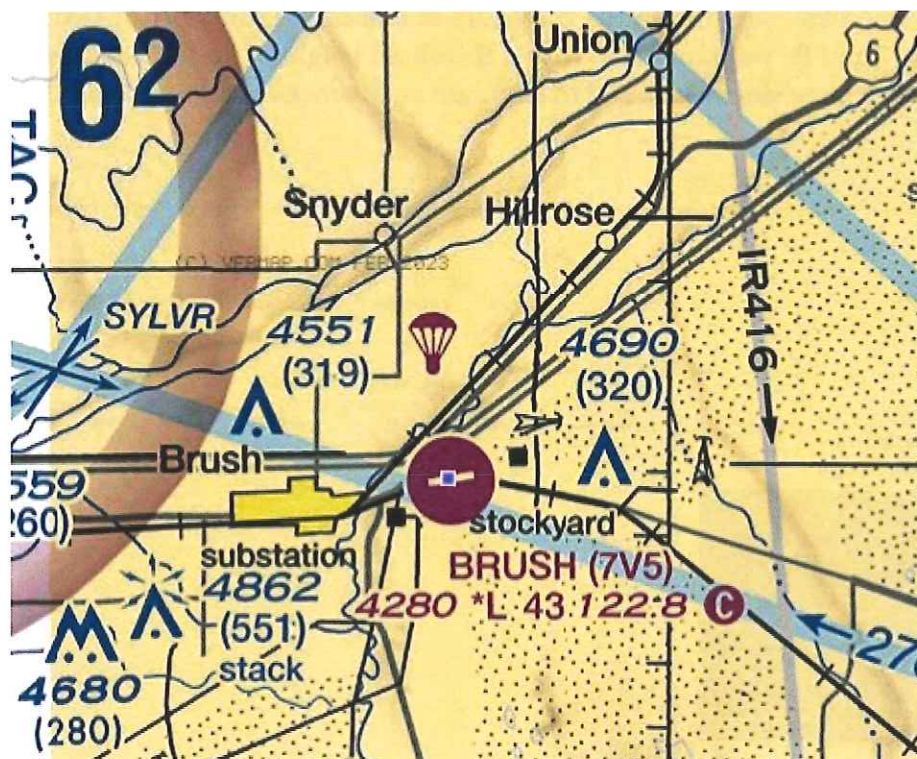


FIGURE 14: BRUSH MUNICIPAL AIRPORT (7V5)

4.0 SUMMARY OF GLARE RESULTS

This report documents the following summary. The Project will not produce glare visible to Brush Municipal Airport's (7V5) 2 flight paths modeled using a 0-DRA, 5-DRA, and 10-DRA. And since the project is not located on a federally obligated airport, this Project complies with the Federal Aviation Administration (FAA) glare guidance 2021 (**Appendix C**).

Green glare is predicted to occur at 15 OP residence receptors and 1 routes for approximately 5 or fewer minutes/day for a portion of the year, some just after sunrise and the others just prior to sunset if the array is set to a 0-DRA. Green glare is not predicted if the array is set to 5-DRA or 10-DRA.

Yellow glare not predicted to occur at any of the OP residence receptors, routes or airport flight paths when modeled at 0-DRA, 5-DRA, or 10-DRA. (**Tables 1 and 2 and Appendix A and B**).

PV solar projects do not produce red glare because the reflected glare is not concentrated and making it less than looking directly at the sun. When glare is predicted, it most frequently occurs just after sunrise when the sun is low above the horizon and viewers are looking easterly at the

arrays, or just before sunset when the sun is low above the horizon and viewers are looking westerly at the arrays.

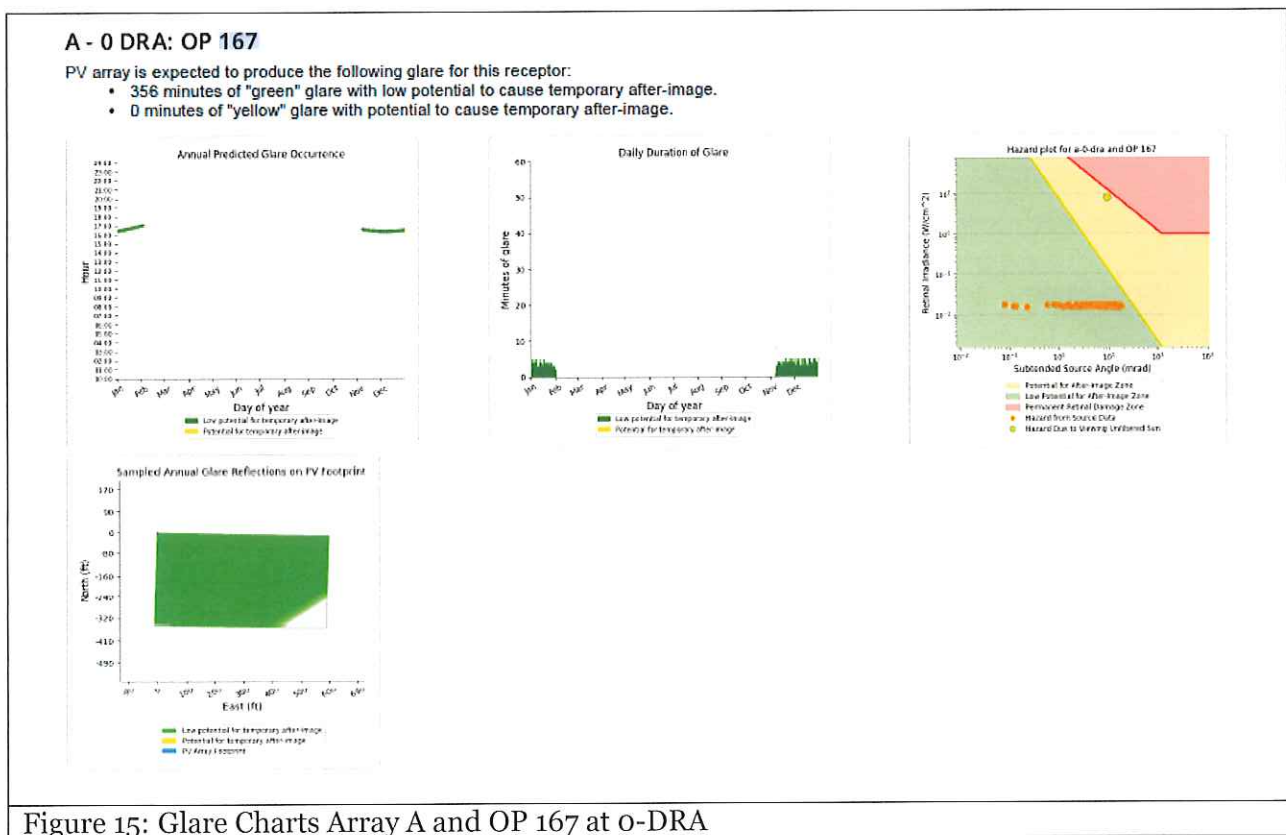
Three examples modeled showing the glare charts of receptors modeled having among the highest glare are Array A and OP 167, Route CR W and FP-07 at 0-DRA **Figures 15, 16 and 17**. The same arrays and receptors with a 5-DRA and 10-DRA have no glare.

Array A 0-DRA OP Receptor 167

PV array is expected to produce the following glare for receptors at this location:

356 minutes of "green" glare with low potential to cause temporary after-image.

0 minutes of "yellow" glare. This glare consists of approximately 5 minutes of glare per day from November through January occurring just before sunset.



Array B o-DRA Co Rd W

PV array is expected to produce the following glare for receptors at this location:

183 minutes of "green" glare with low potential to cause temporary after-image.

0 minutes of "yellow" glare. This glare consists of approximately 5 minutes of glare per day from November through January occurring just before sunset.

B-0 DRA: Co Rd W

PV array is expected to produce the following glare for this receptor:

- 183 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.

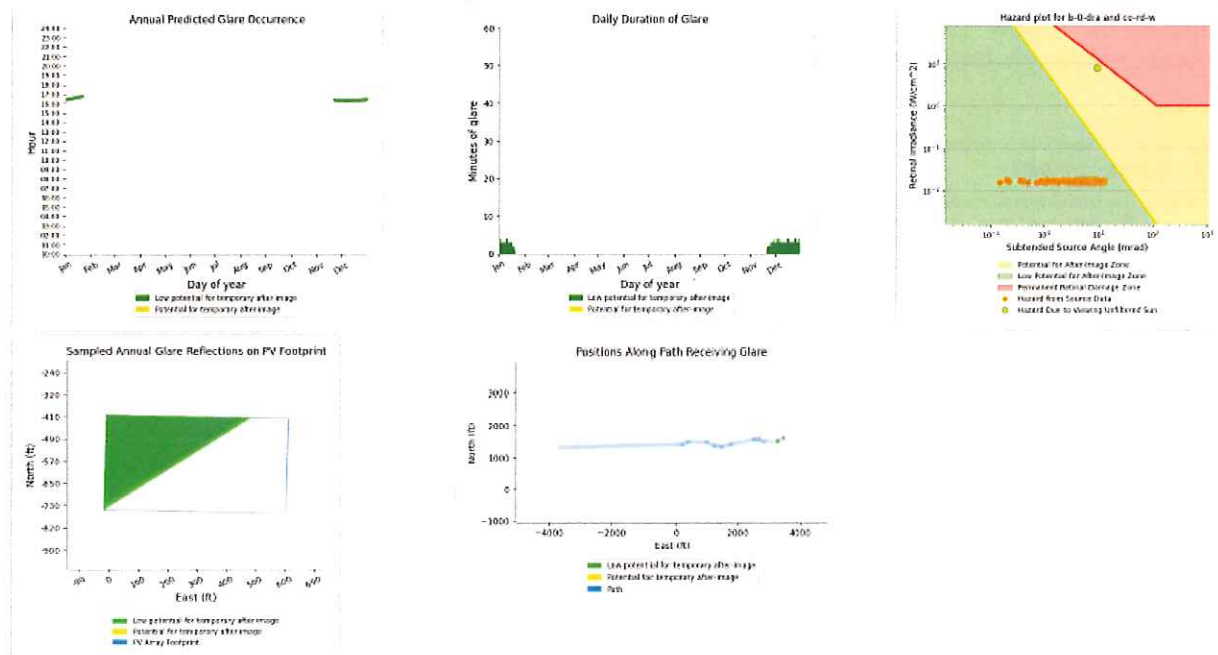


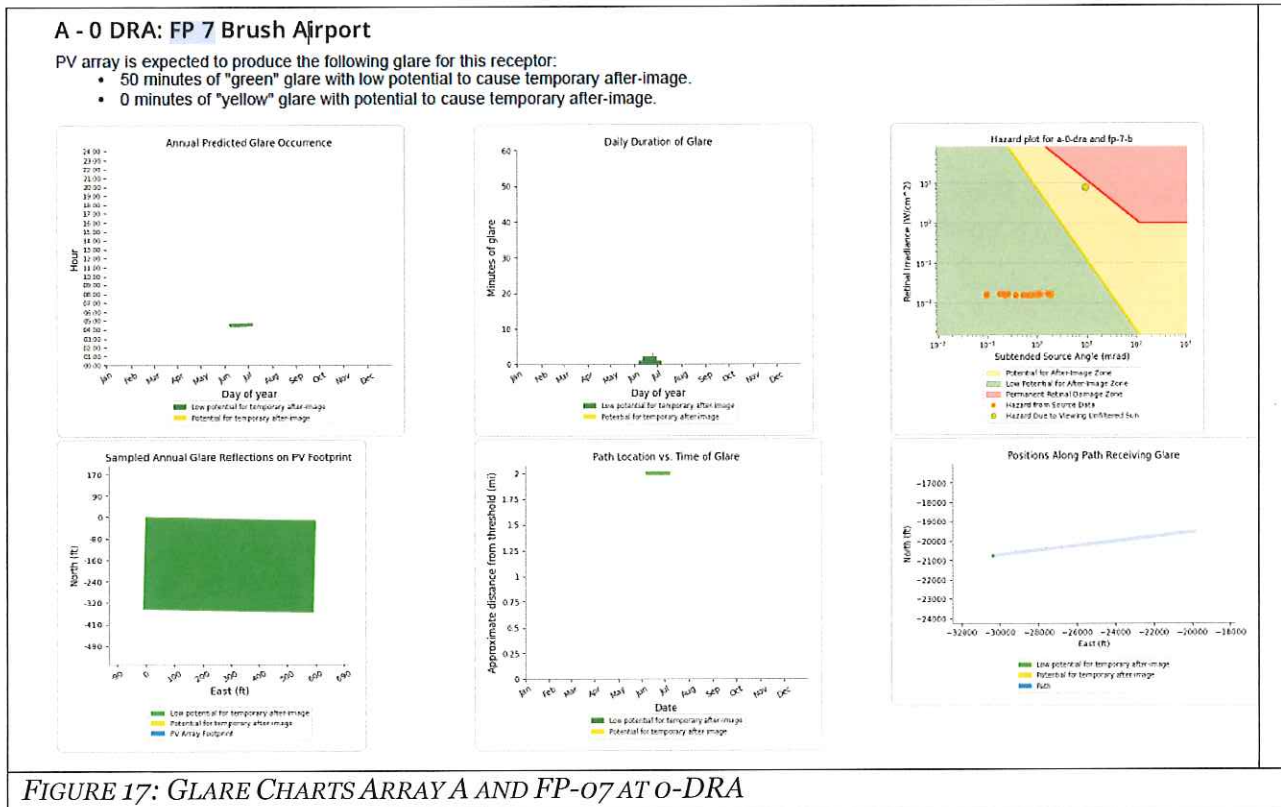
Figure 16: Glare Charts Array A and Route Co Rd W at o-DRA

Array A o-DRA FP-07

PV array is expected to produce the following glare for receptors at this location:

50 minutes of "green" glare with low potential to cause temporary after-image.

0 minutes of "yellow" glare. This glare consists of less than 5 minutes of glare per day from June into July occurring just after sunrise.



5.0 REFERENCES

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Exhibits



Data Sources: Westwood (2023) NAIP Imagery (2021), ESRI, WWS, Vortex Streets BaseMap (Accessed 2023), U.S. Census Bureau (2022)

Westwood
 Toll Free (866) 937-5150 westwoodps.com
 Westwood Professional Services, Inc.

Legend

Project Fence Boundary	County Boundary	State Boundary
Subject Parcel	Major Road	Brush Municipal Airport
Municipal Boundary	Flight Path	Airport Receptor

USS Camp Creek Solar Project

Morgan County, Colorado

Site Location

EXHIBIT 1



Data Sources: Westwood (2023), NAD 83 Imagery (2021), U.S. Census Bureau (2022)

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 Westwood Professional Services, Inc.

Legend

- Subject Parcel
- Project Fence Boundary
- Solar Array Group
- Residence Receptor
- Road Study Segment
- Road

USS Camp Creek Solar Project

Morgan County, Colorado

Residence & Road
 Glare Study



Appendix A
Array A
Glare Summary Pages

Array A OPs 100-139 with 0, 5, 10 Degree Rest Angle Green Glare Min/Yr

Component	0 DRA	5 DRA	10 DRA	Maximum Minutes		
				0 DRA	5 DRA	10 DRA
FP 25 Brush Airport	-	-	-	0	0	0
FP 7 Brush Airport	50	-	-	50	0	0
OP 100	-	-	-	0	0	0
OP 101	-	-	-	0	0	0
OP 102	-	-	-	0	0	0
OP 103	75	-	-	75	0	0
OP 104	-	-	-	0	0	0
OP 105	-	-	-	0	0	0
OP 106	-	-	-	0	0	0
OP 107	210	-	-	210	0	0
OP 108	-	-	-	0	0	0
OP 109	166	-	-	166	0	0
OP 110	-	-	-	0	0	0
OP 111	230	-	-	230	0	0
OP 112	-	-	-	0	0	0
OP 113	197	-	-	197	0	0
OP 114	-	-	-	0	0	0
OP 115	151	-	-	151	0	0
OP 116	-	-	-	0	0	0
OP 117	171	-	-	171	0	0
OP 118	-	-	-	0	0	0
OP 119	69	-	-	69	0	0
OP 120	-	-	-	0	0	0
OP 121	-	-	-	0	0	0
OP 122	-	-	-	0	0	0
OP 123	-	-	-	0	0	0
OP 124	-	-	-	0	0	0
OP 125	-	-	-	0	0	0
OP 126	-	-	-	0	0	0
OP 127	-	-	-	0	0	0
OP 128	-	-	-	0	0	0
OP 129	-	-	-	0	0	0
OP 130	-	-	-	0	0	0
OP 131	-	-	-	0	0	0
OP 132	-	-	-	0	0	0
OP 133	-	-	-	0	0	0
OP 134	-	-	-	0	0	0
OP 135	-	-	-	0	0	0
OP 136	-	-	-	0	0	0
OP 137	-	-	-	0	0	0
OP 138	-	-	-	0	0	0
OP 139	-	-	-	0	0	0
Route: Co Rd 30	-	-	-	0	0	0
Route: Co Rd W	343	-	-	343	0	0
Route: East St	-	-	-	0	0	0
Route: I-76 Northbound	-	-	-	0	0	0
Route: I-76 Southbound	-	-	-	0	0	0

Array A OPs 100-139 with 0, 5, 10 Degree Rest Angle Yellow Glare Min/Yr						
Component	0 DRA	5 DRA	10 DRA	Maximum Minutes		
				0 DRA	5 DRA	10 DRA
FP 25 Brush Airport	-	-	-	0	0	0
FP 7 Brush Airport	-	-	-	0	0	0
OP 100	-	-	-	0	0	0
OP 101	-	-	-	0	0	0
OP 102	-	-	-	0	0	0
OP 103	-	-	-	0	0	0
OP 104	-	-	-	0	0	0
OP 105	-	-	-	0	0	0
OP 106	-	-	-	0	0	0
OP 107	-	-	-	0	0	0
OP 108	-	-	-	0	0	0
OP 109	-	-	-	0	0	0
OP 110	-	-	-	0	0	0
OP 111	-	-	-	0	0	0
OP 112	-	-	-	0	0	0
OP 113	-	-	-	0	0	0
OP 114	-	-	-	0	0	0
OP 115	-	-	-	0	0	0
OP 116	-	-	-	0	0	0
OP 117	-	-	-	0	0	0
OP 118	-	-	-	0	0	0
OP 119	-	-	-	0	0	0
OP 120	-	-	-	0	0	0
OP 121	-	-	-	0	0	0
OP 122	-	-	-	0	0	0
OP 123	-	-	-	0	0	0
OP 124	-	-	-	0	0	0
OP 125	-	-	-	0	0	0
OP 126	-	-	-	0	0	0
OP 127	-	-	-	0	0	0
OP 128	-	-	-	0	0	0
OP 129	-	-	-	0	0	0
OP 130	-	-	-	0	0	0
OP 131	-	-	-	0	0	0
OP 132	-	-	-	0	0	0
OP 133	-	-	-	0	0	0
OP 134	-	-	-	0	0	0
OP 135	-	-	-	0	0	0
OP 136	-	-	-	0	0	0
OP 137	-	-	-	0	0	0
OP 138	-	-	-	0	0	0
OP 139	-	-	-	0	0	0
Route: Co Rd 30	-	-	-	0	0	0
Route: Co Rd W	-	-	-	0	0	0
Route: East St	-	-	-	0	0	0
Route: I-76 Northbound	-	-	-	0	0	0
Route: I-76 Southbound	-	-	-	0	0	0

Array A OPs 140-173 with 0, 5, 10 Degree Rest Angle Green Glare Min/Yr						
Component	0 DRA	5 DRA	10 DRA	Maximum Minutes		
				0 DRA	5 DRA	10 DRA
OP 140	-	-	-	0	0	0
OP 141	-	-	-	0	0	0
OP 142	-	-	-	0	0	0
OP 143	-	-	-	0	0	0
OP 144	-	-	-	0	0	0
OP 145	-	-	-	0	0	0
OP 146	-	-	-	0	0	0
OP 147	-	-	-	0	0	0
OP 148	-	-	-	0	0	0
OP 149	-	-	-	0	0	0
OP 150	-	-	-	0	0	0
OP 151	-	-	-	0	0	0
OP 152	-	-	-	0	0	0
OP 153	-	-	-	0	0	0
OP 154	-	-	-	0	0	0
OP 155	-	-	-	0	0	0
OP 156	-	-	-	0	0	0
OP 157	-	-	-	0	0	0
OP 158	-	-	-	0	0	0
OP 159	-	-	-	0	0	0
OP 160	-	-	-	0	0	0
OP 161	-	-	-	0	0	0
OP 162	-	-	-	0	0	0
OP 163	-	-	-	0	0	0
OP 164	267	-	-	267	0	0
OP 165	288	-	-	288	0	0
OP 166	331	-	-	331	0	0
OP 167	356	-	-	356	0	0
OP 168	270	-	-	270	0	0
OP 169	335	-	-	335	0	0
OP 170	186	-	-	186	0	0
OP 171	246	-	-	246	0	0
OP 172	-	-	-	0	0	0
OP 173	-	-	-	0	0	0

Array A OPs 140-173 with 0, 5, 10 Degree Rest Angle Yellow Glare Min/Yr						
Component	0 DRA	5 DRA	10 DRA	Maximum Minutes		
				0 DRA	5 DRA	10 DRA
OP 140	-	-	-	0	0	0
OP 141	-	-	-	0	0	0
OP 142	-	-	-	0	0	0
OP 143	-	-	-	0	0	0
OP 144	-	-	-	0	0	0
OP 145	-	-	-	0	0	0
OP 146	-	-	-	0	0	0
OP 147	-	-	-	0	0	0
OP 148	-	-	-	0	0	0
OP 149	-	-	-	0	0	0
OP 150	-	-	-	0	0	0
OP 151	-	-	-	0	0	0
OP 152	-	-	-	0	0	0
OP 153	-	-	-	0	0	0
OP 154	-	-	-	0	0	0
OP 155	-	-	-	0	0	0
OP 156	-	-	-	0	0	0
OP 157	-	-	-	0	0	0
OP 158	-	-	-	0	0	0
OP 159	-	-	-	0	0	0
OP 160	-	-	-	0	0	0
OP 161	-	-	-	0	0	0
OP 162	-	-	-	0	0	0
OP 163	-	-	-	0	0	0
OP 164	-	-	-	0	0	0
OP 165	-	-	-	0	0	0
OP 166	-	-	-	0	0	0
OP 167	-	-	-	0	0	0
OP 168	-	-	-	0	0	0
OP 169	-	-	-	0	0	0
OP 170	-	-	-	0	0	0
OP 171	-	-	-	0	0	0
OP 172	-	-	-	0	0	0
OP 173	-	-	-	0	0	0

Appendix A
Array B
Glare Summary Pages

Array B OPs 100-139 with 0, 5, 10 Degree Rest Angle Green Glare Min/Yr

Component	<u>0 DRA</u>	<u>5 DRA</u>	<u>10 DRA</u>	Maximum Minutes		
				0 DRA	5 DRA	10 DRA
FP 25 Brush Airport	-	-	-	0	0	0
FP 7 Brush Airport	47	-	-	47	0	0
OP 100	-	-	-	0	0	0
OP 101	-	-	-	0	0	0
OP 102	-	-	-	0	0	0
OP 103	-	-	-	0	0	0
OP 104	-	-	-	0	0	0
OP 105	-	-	-	0	0	0
OP 106	-	-	-	0	0	0
OP 107	-	-	-	0	0	0
OP 108	-	-	-	0	0	0
OP 109	-	-	-	0	0	0
OP 110	-	-	-	0	0	0
OP 111	135	-	-	135	0	0
OP 112	-	-	-	0	0	0
OP 113	139	-	-	139	0	0
OP 114	-	-	-	0	0	0
OP 115	79	-	-	79	0	0
OP 116	-	-	-	0	0	0
OP 117	-	-	-	0	0	0
OP 118	-	-	-	0	0	0
OP 119	-	-	-	0	0	0
OP 120	-	-	-	0	0	0
OP 121	-	-	-	0	0	0
OP 122	-	-	-	0	0	0
OP 123	-	-	-	0	0	0
OP 124	-	-	-	0	0	0
OP 125	-	-	-	0	0	0
OP 126	-	-	-	0	0	0
OP 127	-	-	-	0	0	0
OP 128	-	-	-	0	0	0
OP 129	-	-	-	0	0	0
OP 130	-	-	-	0	0	0
OP 131	-	-	-	0	0	0
OP 132	-	-	-	0	0	0
OP 133	-	-	-	0	0	0
OP 134	-	-	-	0	0	0
OP 135	-	-	-	0	0	0
OP 136	-	-	-	0	0	0
OP 137	-	-	-	0	0	0
OP 138	-	-	-	0	0	0
OP 139	-	-	-	0	0	0
Route: Co Rd 30	-	-	-	0	0	0
Route: Co Rd W	183	-	-	183	0	0
Route: East St	-	-	-	0	0	0
Route: I-76 Northbound	-	-	-	0	0	0
Route: I-76 Southbound	-	-	-	0	0	0

Array B OPs 100-139 with 0, 5, 10 Degree Rest Angle Yellow Glare Min/Yr

Component	0 DRA	5 DRA	10 DRA	Maximum Minutes		
				0 DRA	5 DRA	10 DRA
FP 25 Brush Airport	-	-	-	0	0	0
FP 7 Brush Airport	-	-	-	0	0	0
OP 100	-	-	-	0	0	0
OP 101	-	-	-	0	0	0
OP 102	-	-	-	0	0	0
OP 103	-	-	-	0	0	0
OP 104	-	-	-	0	0	0
OP 105	-	-	-	0	0	0
OP 106	-	-	-	0	0	0
OP 107	-	-	-	0	0	0
OP 108	-	-	-	0	0	0
OP 109	-	-	-	0	0	0
OP 110	-	-	-	0	0	0
OP 111	-	-	-	0	0	0
OP 112	-	-	-	0	0	0
OP 113	-	-	-	0	0	0
OP 114	-	-	-	0	0	0
OP 115	-	-	-	0	0	0
OP 116	-	-	-	0	0	0
OP 117	-	-	-	0	0	0
OP 118	-	-	-	0	0	0
OP 119	-	-	-	0	0	0
OP 120	-	-	-	0	0	0
OP 121	-	-	-	0	0	0
OP 122	-	-	-	0	0	0
OP 123	-	-	-	0	0	0
OP 124	-	-	-	0	0	0
OP 125	-	-	-	0	0	0
OP 126	-	-	-	0	0	0
OP 127	-	-	-	0	0	0
OP 128	-	-	-	0	0	0
OP 129	-	-	-	0	0	0
OP 130	-	-	-	0	0	0
OP 131	-	-	-	0	0	0
OP 132	-	-	-	0	0	0
OP 133	-	-	-	0	0	0
OP 134	-	-	-	0	0	0
OP 135	-	-	-	0	0	0
OP 136	-	-	-	0	0	0
OP 137	-	-	-	0	0	0
OP 138	-	-	-	0	0	0
OP 139	-	-	-	0	0	0
Route: Co Rd 30	-	-	-	0	0	0
Route: Co Rd W	-	-	-	0	0	0
Route: East St	-	-	-	0	0	0
Route: I-76 Northbound	-	-	-	0	0	0
Route: I-76 Southbound	-	-	-	0	0	0

Array B OPs 140-173 with 0, 5, 10 Degree Rest Angle Green Glare Min/Yr						
Component	0 DRA	5 DRA	10 DRA	Maximum Minutes		
				0 DRA	5 DRA	10 DRA
OP 140	-	-	-	0	0	0
OP 141	-	-	-	0	0	0
OP 142	-	-	-	0	0	0
OP 143	-	-	-	0	0	0
OP 144	-	-	-	0	0	0
OP 145	-	-	-	0	0	0
OP 146	-	-	-	0	0	0
OP 147	-	-	-	0	0	0
OP 148	-	-	-	0	0	0
OP 149	-	-	-	0	0	0
OP 150	-	-	-	0	0	0
OP 151	-	-	-	0	0	0
OP 152	-	-	-	0	0	0
OP 153	-	-	-	0	0	0
OP 154	-	-	-	0	0	0
OP 155	-	-	-	0	0	0
OP 156	-	-	-	0	0	0
OP 157	-	-	-	0	0	0
OP 158	-	-	-	0	0	0
OP 159	-	-	-	0	0	0
OP 160	-	-	-	0	0	0
OP 161	-	-	-	0	0	0
OP 162	-	-	-	0	0	0
OP 163	-	-	-	0	0	0
OP 164	43	-	-	43	0	0
OP 165	49	-	-	49	0	0
OP 166	146	-	-	146	0	0
OP 167	158	-	-	158	0	0
OP 168	140	-	-	140	0	0
OP 169	150	-	-	150	0	0
OP 170	-	-	-	0	0	0
OP 171	-	-	-	0	0	0
OP 172	-	-	-	0	0	0
OP 173	-	-	-	0	0	0

Array B OPs 140-173 with 0, 5, 10 Degree Rest Angle Yellow Glare Min/Yr						
Component	0 DRA	5 DRA	10 DRA	Maximum Minutes		
				0 DRA	5 DRA	10 DRA
OP 140	-	-	-	0	0	0
OP 141	-	-	-	0	0	0
OP 142	-	-	-	0	0	0
OP 143	-	-	-	0	0	0
OP 144	-	-	-	0	0	0
OP 145	-	-	-	0	0	0
OP 146	-	-	-	0	0	0
OP 147	-	-	-	0	0	0
OP 148	-	-	-	0	0	0
OP 149	-	-	-	0	0	0
OP 150	-	-	-	0	0	0
OP 151	-	-	-	0	0	0
OP 152	-	-	-	0	0	0
OP 153	-	-	-	0	0	0
OP 154	-	-	-	0	0	0
OP 155	-	-	-	0	0	0
OP 156	-	-	-	0	0	0
OP 157	-	-	-	0	0	0
OP 158	-	-	-	0	0	0
OP 159	-	-	-	0	0	0
OP 160	-	-	-	0	0	0
OP 161	-	-	-	0	0	0
OP 162	-	-	-	0	0	0
OP 163	-	-	-	0	0	0
OP 164	-	-	-	0	0	0
OP 165	-	-	-	0	0	0
OP 166	-	-	-	0	0	0
OP 167	-	-	-	0	0	0
OP 168	-	-	-	0	0	0
OP 169	-	-	-	0	0	0
OP 170	-	-	-	0	0	0
OP 171	-	-	-	0	0	0
OP 172	-	-	-	0	0	0
OP 173	-	-	-	0	0	0

**Appendix B
Glare Detail
Pages**

USS Camp Creek

CC_OPs100-139_LRG_SAT_230510

Created May 10, 2023
Updated May 10, 2023
Time-step 1 minute
Timezone offset UTC-7
Minimum sun altitude 0.0 deg
Site ID 90308.15899

Project type Advanced
Project status: active
Category 1 MW to 5 MW



Misc. Analysis Settings

DNI: varies (1,000.0 W/m² peak)
Ocular transmission coefficient: 0.5
Pupil diameter: 0.002 m
Eye focal length: 0.017 m
Sun subtended angle: 9.3 mrad

PV Analysis Methodology: Version 2
Enhanced subtended angle calculation: On

Summary of Results

Glare with low potential for temporary after-image predicted

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
A - 0 DRA	SA tracking	SA tracking	1,662	0	-
A - 10 DRA	SA tracking	SA tracking	0	0	-
A - 5 DRA	SA tracking	SA tracking	0	0	-
B-0 DRA	SA tracking	SA tracking	583	0	-
B - 10 DRA	SA tracking	SA tracking	0	0	-
B-5 DRA	SA tracking	SA tracking	0	0	-

Component Data

PV Array(s)

Total PV footprint area: 29.1 acres

Name: A - 0 DRA
Footprint area: 4.8 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0 deg
Maximum tracking angle: 52.0 deg
Resting angle: 0.0 deg
Ground Coverage Ratio: 0.35
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Name: A - 10 DRA
Footprint area: 4.8 acres
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 0.0 deg
Maximum tracking angle: 52.0 deg
Resting angle: 10.0 deg
Ground Coverage Ratio: 0.35
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.317238	-103.512154	4185.04	6.50	4191.54
2	40.317202	-103.510037	4185.04	6.50	4191.54
3	40.316239	-103.510066	4187.04	6.50	4193.54
4	40.316275	-103.512182	4188.24	6.50	4194.74

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.317238	-103.512154	4185.04	6.50	4191.54
2	40.317202	-103.510037	4185.04	6.50	4191.54
3	40.316239	-103.510066	4187.04	6.50	4193.54
4	40.316275	-103.512182	4188.24	6.50	4194.74

Name: A - 5 DRA

Footprint area: 4.8 acres

Axis tracking: Single-axis rotation

Backtracking: Shade-slope

Tracking axis orientation: 0.0 deg

Maximum tracking angle: 52.0 deg

Resting angle: 5.0 deg

Ground Coverage Ratio: 0.35

Rated power: -

Panel material: Smooth glass with AR coating

Vary reflectivity with sun position? Yes

Correlate slope error with surface type? Yes

Slope error: 8.43 mrad



Name: B-0 DRA

Footprint area: 4.9 acres

Axis tracking: Single-axis rotation

Backtracking: Shade-slope

Tracking axis orientation: 0.0 deg

Maximum tracking angle: 52.0 deg

Resting angle: 0.0 deg

Ground Coverage Ratio: 0.35

Rated power: -

Panel material: Smooth glass with AR coating

Vary reflectivity with sun position? Yes

Correlate slope error with surface type? Yes

Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.317238	-103.512154	4185.04	6.50	4191.54
2	40.317202	-103.510037	4185.04	6.50	4191.54
3	40.316239	-103.510066	4187.04	6.50	4193.54
4	40.316275	-103.512182	4188.24	6.50	4194.74

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.316129	-103.512186	4188.66	6.50	4195.16
2	40.316091	-103.509990	4188.20	6.50	4194.70
3	40.315129	-103.510018	4189.74	6.50	4196.24
4	40.315166	-103.512214	4196.13	6.50	4202.63

Name: B - 10 DRA

Footprint area: 4.9 acres

Axis tracking: Single-axis rotation

Backtracking: Shade-slope

Tracking axis orientation: 0.0 deg

Maximum tracking angle: 52.0 deg

Resting angle: 10.0 deg

Ground Coverage Ratio: 0.35

Rated power: -

Panel material: Smooth glass with AR coating

Vary reflectivity with sun position? Yes

Correlate slope error with surface type? Yes

Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.316129	-103.512186	4188.66	6.50	4195.16
2	40.316091	-103.509990	4188.20	6.50	4194.70
3	40.315129	-103.510018	4189.74	6.50	4196.24
4	40.315166	-103.512214	4196.13	6.50	4202.63

Name: B-5 DRA

Footprint area: 4.9 acres

Axis tracking: Single-axis rotation

Backtracking: Shade-slope

Tracking axis orientation: 0.0 deg

Maximum tracking angle: 52.0 deg

Resting angle: 5.0 deg

Ground Coverage Ratio: 0.35

Rated power: -

Panel material: Smooth glass with AR coating

Vary reflectivity with sun position? Yes

Correlate slope error with surface type? Yes

Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.316129	-103.512186	4188.66	6.50	4195.16
2	40.316091	-103.509990	4188.20	6.50	4194.70
3	40.315129	-103.510018	4189.74	6.50	4196.24
4	40.315166	-103.512214	4196.13	6.50	4202.63

2-Mile Flight Path Receptor(s)

Name: FP 25 Brush Airport
Description: None
Threshold height : 50 ft
Direction: 262.9 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg



Name: FP 7 Brush Airport
Description: None
Threshold height : 50 ft
Direction: 83.3 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg

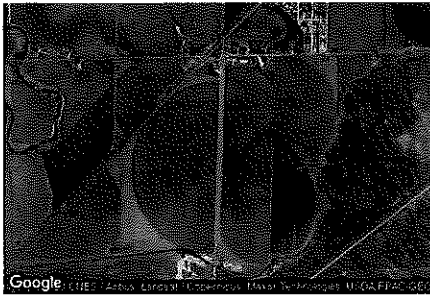


Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	40.265040	-103.568397	4303.30	50.00	4353.30
2-mile point	40.268603	-103.530752	4330.90	575.80	4906.70

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	40.263689	-103.583383	4268.90	50.00	4318.90
2-mile point	40.260331	-103.621060	4229.90	642.40	4872.30

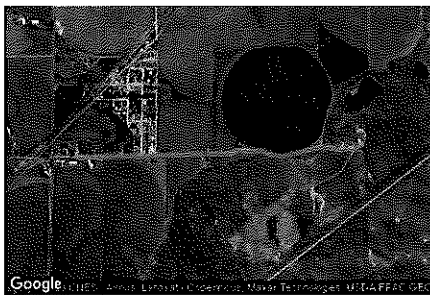
Route Receptor(s)

Name: Co Rd 30
Route type Two-way
View angle: 50.0 deg



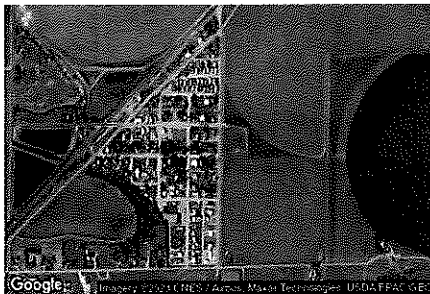
Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.308409	-103.528020	4183.24	3.50	4186.74
2	40.320818	-103.527475	4180.58	3.50	4184.08

Name: Co Rd W
Route type Two-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.320875	-103.525272	4174.98	3.50	4178.48
2	40.321133	-103.511444	4184.76	3.50	4188.26
3	40.321355	-103.510740	4181.89	3.50	4185.39
4	40.321308	-103.508606	4181.12	3.50	4184.62
5	40.321024	-103.507729	4181.76	3.50	4185.26
6	40.320932	-103.506907	4181.76	3.50	4185.26
7	40.321145	-103.505816	4187.23	3.50	4190.73
8	40.321558	-103.503155	4185.15	3.50	4188.65
9	40.321569	-103.502627	4184.79	3.50	4188.29
10	40.321374	-103.502028	4187.08	3.50	4190.58
11	40.321418	-103.500430	4190.64	3.50	4194.14
12	40.321692	-103.499754	4189.88	3.50	4193.38

Name: East St
Route type Two-way
View angle: 50.0 deg



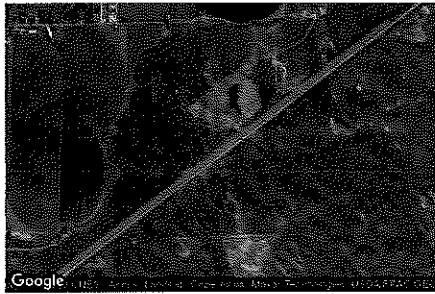
Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.321009	-103.518102	4177.36	3.50	4180.86
2	40.328911	-103.517908	4165.77	3.50	4169.27

Name: I-76 Northbound
Route type One-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.303827	-103.522844	4266.00	3.50	4269.50
2	40.320725	-103.493923	4196.60	3.50	4200.10

Name: I-76 Southbound
Route type One-way
View angle: 50.0 deg



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.304108	-103.523201	4259.67	3.50	4263.17
2	40.321060	-103.494090	4195.51	3.50	4199.01

Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
OP 100	40.321127	-103.524723	4175.58	5.00	4180.58
OP 101	40.321127	-103.524723	4175.58	15.00	4190.58
OP 102	40.321163	-103.523785	4175.15	5.00	4180.15
OP 103	40.321163	-103.523785	4175.15	15.00	4190.15
OP 104	40.320489	-103.523066	4171.51	5.00	4176.51
OP 105	40.320489	-103.523066	4171.51	15.00	4186.51
OP 106	40.321169	-103.522636	4175.02	5.00	4180.02
OP 107	40.321169	-103.522636	4175.02	15.00	4190.02
OP 108	40.321168	-103.521799	4175.07	5.00	4180.07
OP 109	40.321168	-103.521799	4175.07	15.00	4190.07
OP 110	40.321246	-103.521375	4176.49	5.00	4181.49
OP 111	40.321246	-103.521375	4176.49	15.00	4191.49
OP 112	40.321132	-103.520453	4175.70	5.00	4180.70
OP 113	40.321132	-103.520453	4175.70	15.00	4190.70
OP 114	40.321150	-103.519672	4175.69	5.00	4180.69
OP 115	40.321150	-103.519672	4175.69	15.00	4190.69
OP 116	40.321184	-103.519111	4175.90	5.00	4180.90
OP 117	40.321184	-103.519111	4175.90	15.00	4190.90
OP 118	40.321402	-103.518297	4178.48	5.00	4183.48
OP 119	40.321402	-103.518297	4178.48	15.00	4193.48
OP 120	40.321712	-103.518361	4177.72	5.00	4182.72
OP 121	40.321712	-103.518361	4177.72	15.00	4192.72
OP 122	40.322138	-103.518341	4175.20	5.00	4180.20
OP 123	40.322138	-103.518341	4175.20	15.00	4190.20
OP 124	40.322601	-103.518497	4171.92	5.00	4176.92
OP 125	40.322601	-103.518497	4171.92	15.00	4186.92
OP 126	40.322847	-103.518346	4170.53	5.00	4175.53
OP 127	40.322847	-103.518346	4170.53	15.00	4185.53
OP 128	40.323067	-103.518277	4168.71	5.00	4173.71
OP 129	40.323067	-103.518277	4168.71	15.00	4183.71
OP 130	40.323498	-103.518292	4168.64	5.00	4173.64
OP 131	40.323498	-103.518292	4168.64	15.00	4183.64
OP 132	40.324010	-103.518334	4168.64	5.00	4173.64
OP 133	40.324010	-103.518334	4168.64	15.00	4183.64
OP 134	40.324526	-103.518319	4168.64	5.00	4173.64
OP 135	40.324526	-103.518319	4168.64	15.00	4183.64
OP 136	40.324897	-103.518540	4168.64	5.00	4173.64
OP 137	40.324897	-103.518540	4168.64	15.00	4183.64
OP 138	40.325429	-103.518265	4171.84	5.00	4176.84
OP 139	40.325429	-103.518265	4171.84	15.00	4186.84

Summary of PV Glare Analysis

PV configuration and total predicted glare

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced	Data File
	deg	deg	min	min	kWh	
A - 0 DRA	SA tracking	SA tracking	1,662	0	-	
A - 10 DRA	SA tracking	SA tracking	0	0	-	-
A - 5 DRA	SA tracking	SA tracking	0	0	-	-
B-0 DRA	SA tracking	SA tracking	583	0	-	
B - 10 DRA	SA tracking	SA tracking	0	0	-	-
B-5 DRA	SA tracking	SA tracking	0	0	-	-

Distinct glare per month

Excludes overlapping glare from PV array for multiple receptors at matching time(s)

PV	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
a-0-dra (green)	216	40	0	0	0	44	6	0	0	4	181	223
a-0-dra (yellow)	0	0	0	0	0	0	0	0	0	0	0	0
b-0-dra (green)	123	0	0	0	0	39	8	0	0	0	44	275
b-0-dra (yellow)	0	0	0	0	0	0	0	0	0	0	0	0

PV & Receptor Analysis Results

Results for each PV array and receptor

A - 0 DRA low potential for temporary after-image

Component	Green glare (min)	Yellow glare (min)
FP: FP 25 Brush Airport	0	0
FP: FP 7 Brush Airport	50	0
OP: OP 100	0	0
OP: OP 101	0	0
OP: OP 102	0	0
OP: OP 103	75	0
OP: OP 104	0	0
OP: OP 105	0	0
OP: OP 106	0	0
OP: OP 107	210	0
OP: OP 108	0	0
OP: OP 109	166	0
OP: OP 110	0	0
OP: OP 111	230	0
OP: OP 112	0	0
OP: OP 113	197	0
OP: OP 114	0	0

OP: OP 115	151	0
OP: OP 116	0	0
OP: OP 117	171	0
OP: OP 118	0	0
OP: OP 119	69	0
OP: OP 120	0	0
OP: OP 121	0	0
OP: OP 122	0	0
OP: OP 123	0	0
OP: OP 124	0	0
OP: OP 125	0	0
OP: OP 126	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 133	0	0
OP: OP 134	0	0
OP: OP 135	0	0
OP: OP 136	0	0
OP: OP 137	0	0
OP: OP 138	0	0
OP: OP 139	0	0
Route: Co Rd 30	0	0
Route: Co Rd W	343	0
Route: East St	0	0
Route: I-76 Northbound	0	0
Route: I-76 Southbound	0	0

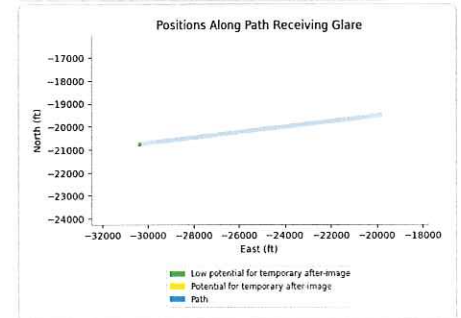
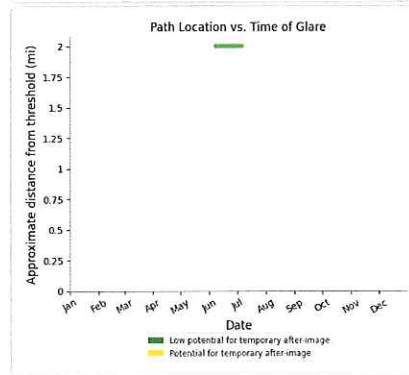
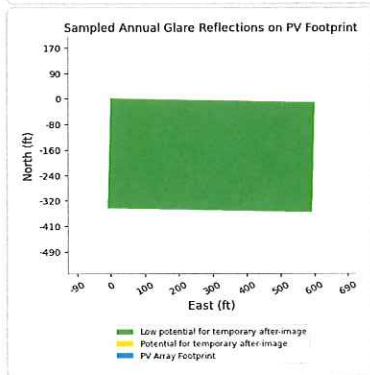
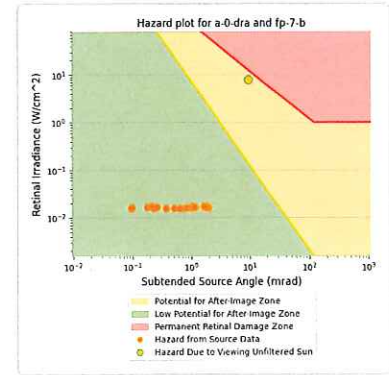
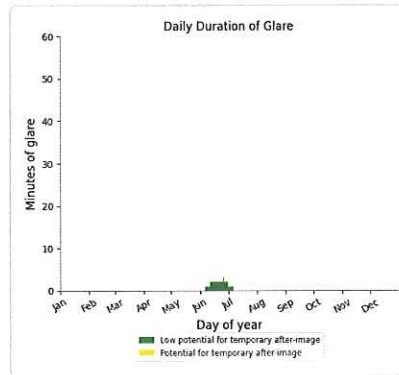
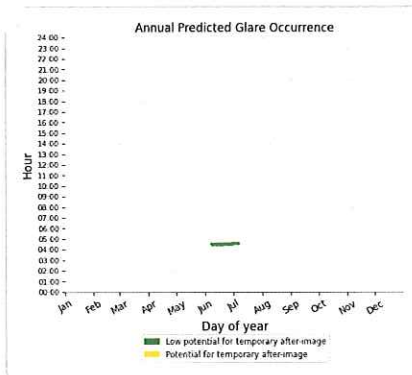
A - 0 DRA: FP 25 Brush Airport

No glare found

A - 0 DRA: FP 7 Brush Airport

PV array is expected to produce the following glare for this receptor:

- 50 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



A - 0 DRA: OP 100

No glare found

A - 0 DRA: OP 101

No glare found

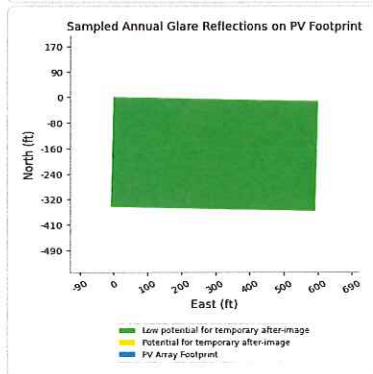
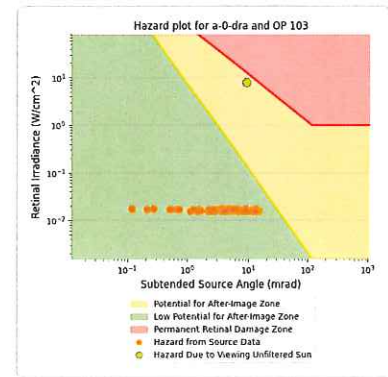
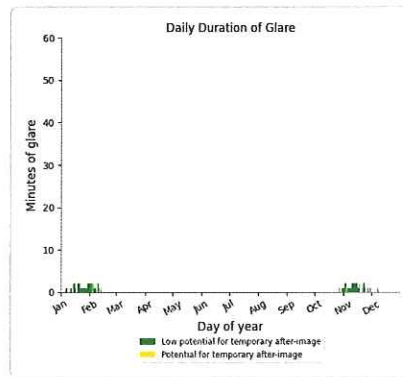
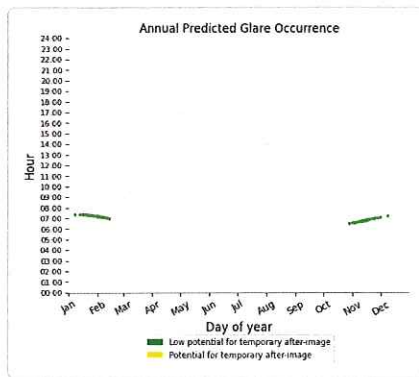
A - 0 DRA: OP 102

No glare found

A - 0 DRA: OP 103

PV array is expected to produce the following glare for this receptor:

- 75 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



A - 0 DRA: OP 104

No glare found

A - 0 DRA: OP 105

No glare found

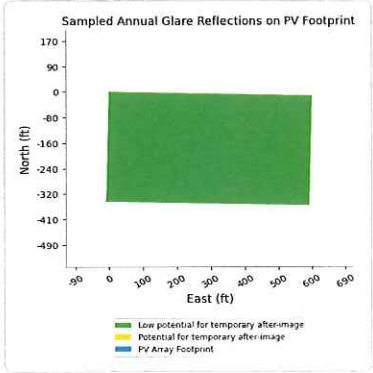
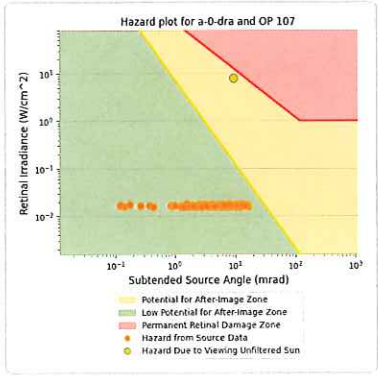
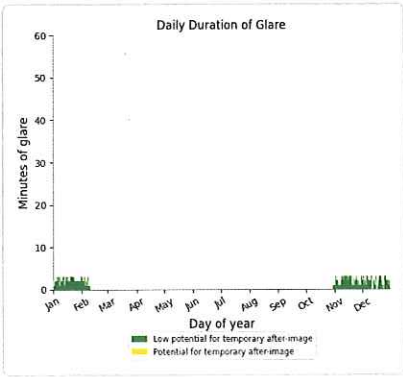
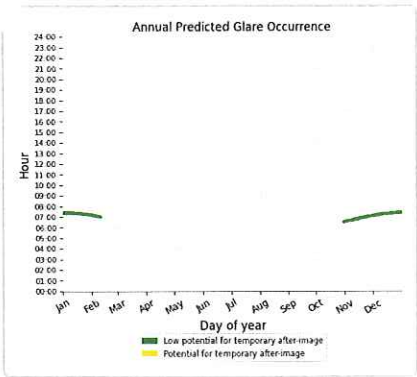
A - 0 DRA: OP 106

No glare found

A - 0 DRA: OP 107

PV array is expected to produce the following glare for this receptor:

- 210 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



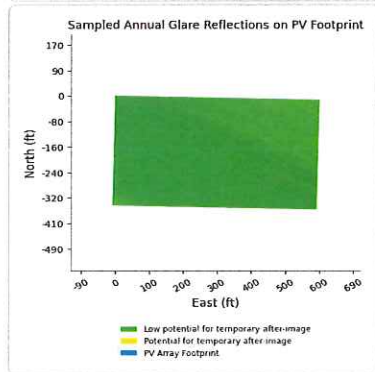
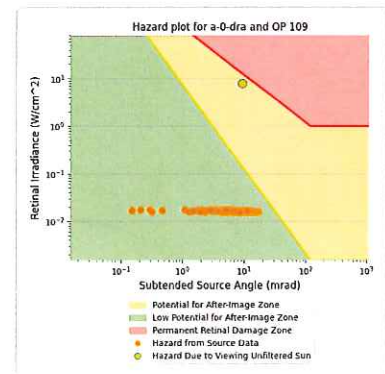
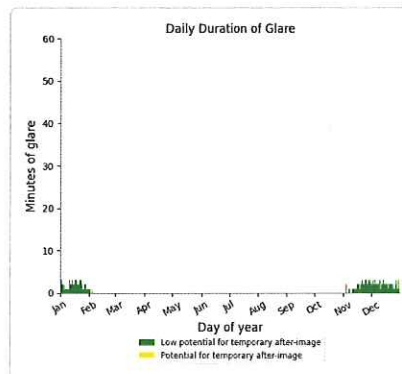
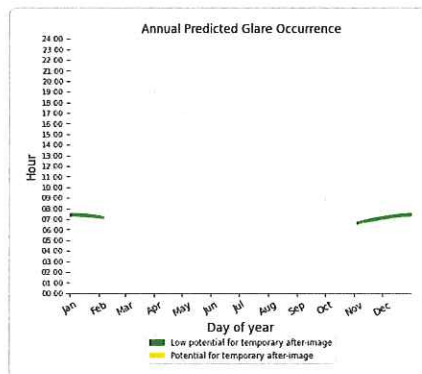
A - 0 DRA: OP 108

No glare found

A - 0 DRA: OP 109

PV array is expected to produce the following glare for this receptor:

- 166 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



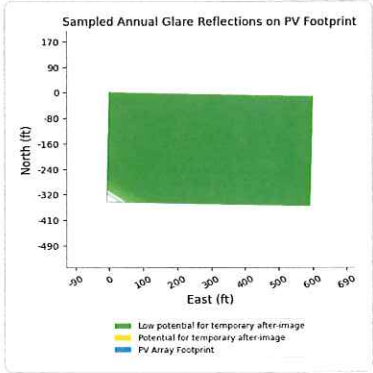
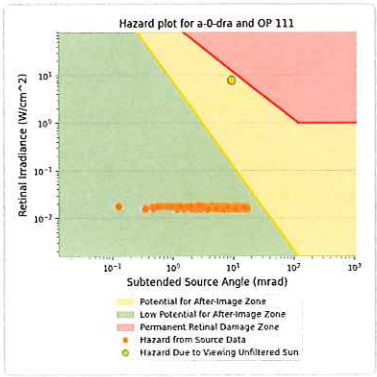
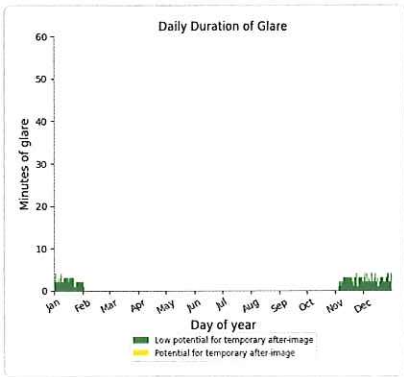
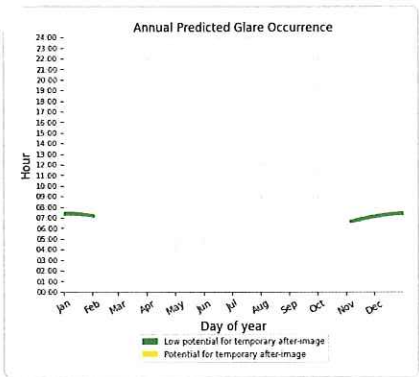
A - 0 DRA: OP 110

No glare found

A - 0 DRA: OP 111

PV array is expected to produce the following glare for this receptor:

- 230 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



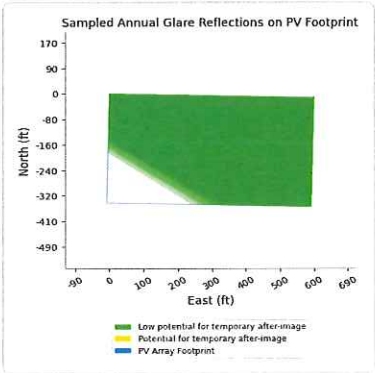
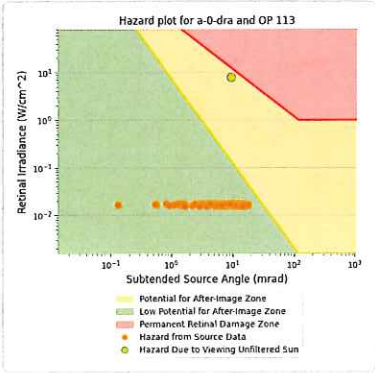
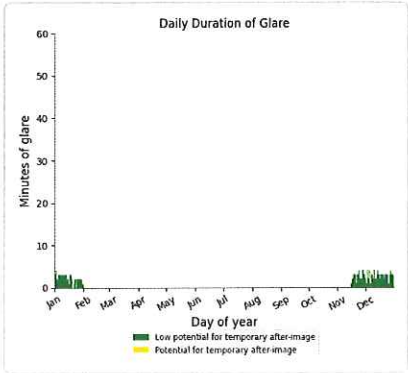
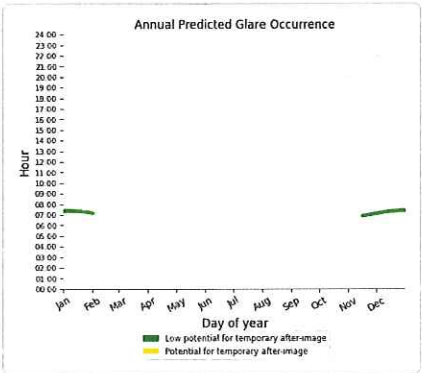
A - 0 DRA: OP 112

No glare found

A - 0 DRA: OP 113

PV array is expected to produce the following glare for this receptor:

- 197 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



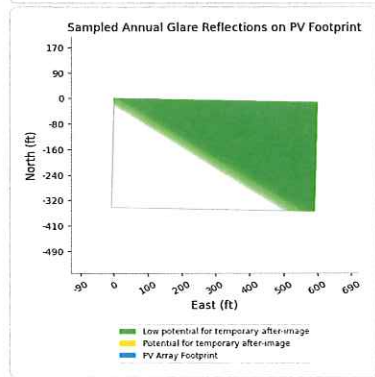
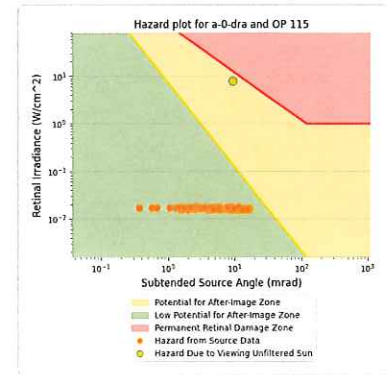
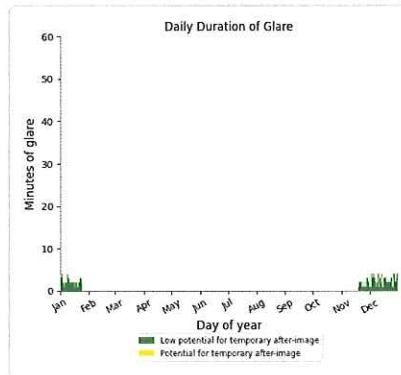
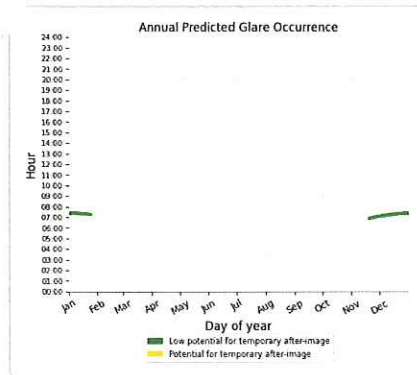
A - 0 DRA: OP 114

No glare found

A - 0 DRA: OP 115

PV array is expected to produce the following glare for this receptor:

- 151 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



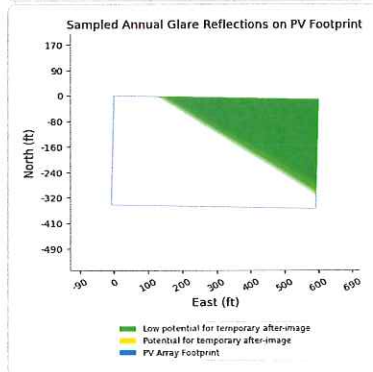
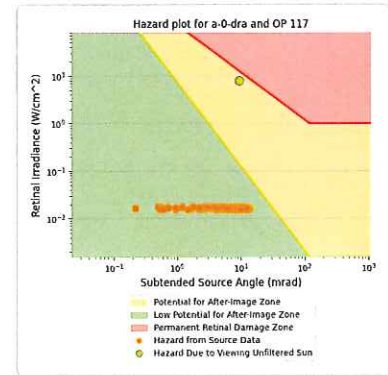
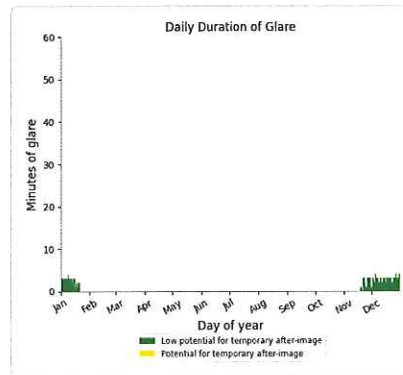
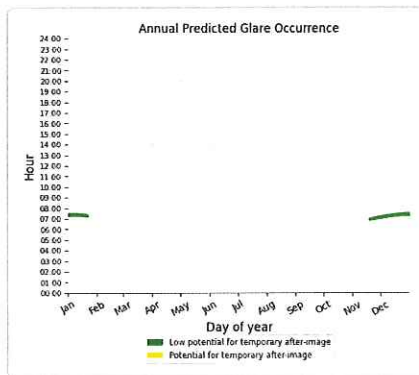
A - 0 DRA: OP 116

No glare found

A - 0 DRA: OP 117

PV array is expected to produce the following glare for this receptor:

- 171 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



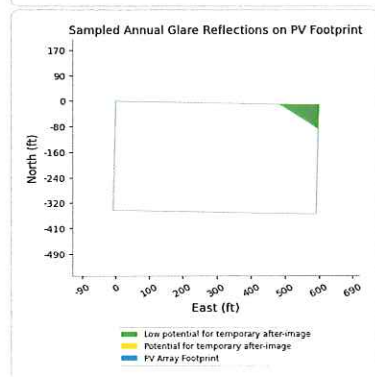
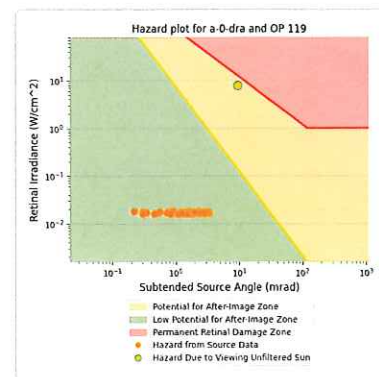
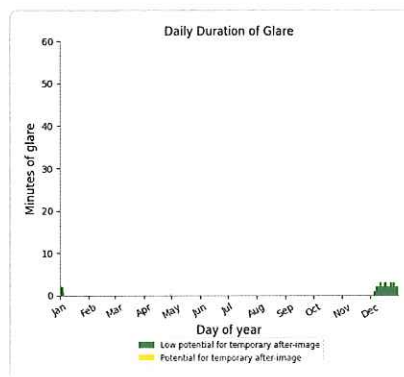
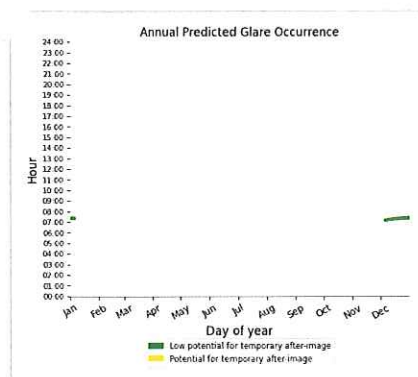
A - 0 DRA: OP 118

No glare found

A - 0 DRA: OP 119

PV array is expected to produce the following glare for this receptor:

- 69 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



. - 0 DRA: OP 120

No glare found

A - 0 DRA: OP 121

No glare found

A - 0 DRA: OP 122

No glare found

A - 0 DRA: OP 123

No glare found

A - 0 DRA: OP 124

No glare found

A - 0 DRA: OP 125

No glare found

A - 0 DRA: OP 126

No glare found

A - 0 DRA: OP 127

No glare found

A - 0 DRA: OP 128

No glare found

A - 0 DRA: OP 129

No glare found

A - 0 DRA: OP 130

No glare found

A - 0 DRA: OP 131

No glare found

A - 0 DRA: OP 132

No glare found

A - 0 DRA: OP 133

No glare found

A - 0 DRA: OP 134

No glare found

A - 0 DRA: OP 135

No glare found

A - 0 DRA: OP 136

No glare found

A - 0 DRA: OP 137

No glare found

A - 0 DRA: OP 138

No glare found

A - 0 DRA: OP 139

No glare found

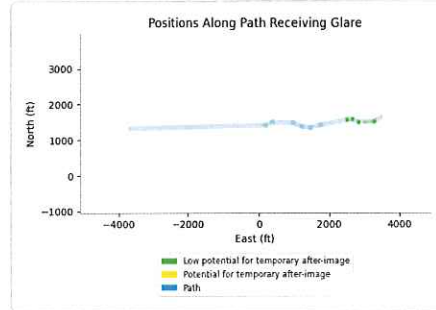
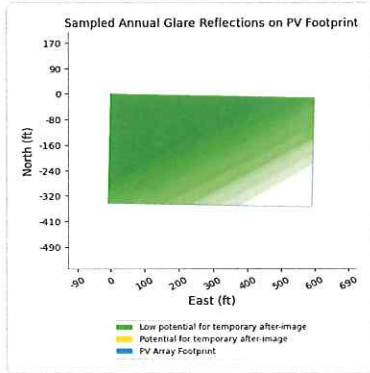
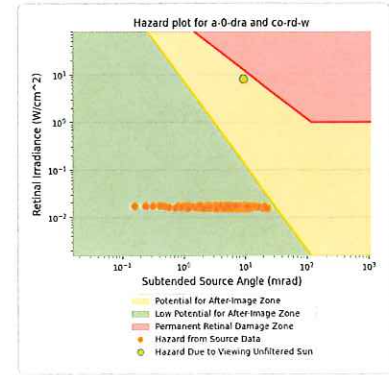
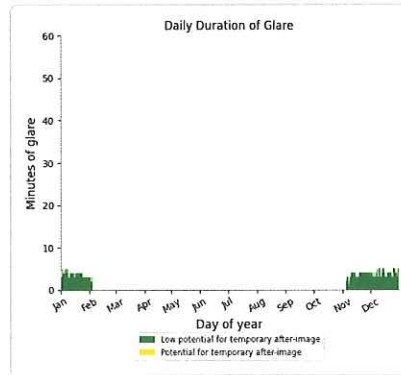
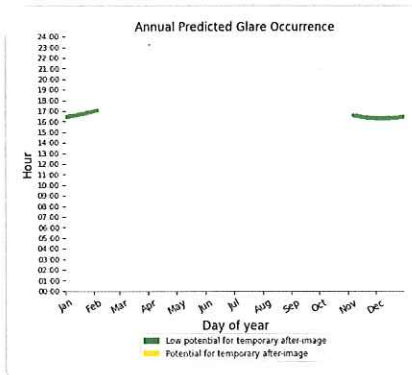
A - 0 DRA: Co Rd 30

No glare found

A - 0 DRA: Co Rd W

PV array is expected to produce the following glare for this receptor:

- 343 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



. - 0 DRA: East St

No glare found

A - 0 DRA: I-76 Northbound

No glare found

A - 0 DRA: I-76 Southbound

No glare found

A - 10 DRA no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 25 Brush Airport	0	0
FP: FP 7 Brush Airport	0	0
OP: OP 100	0	0
OP: OP 101	0	0
OP: OP 102	0	0
OP: OP 103	0	0
OP: OP 104	0	0
OP: OP 105	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 108	0	0
OP: OP 109	0	0
OP: OP 110	0	0
OP: OP 111	0	0
OP: OP 112	0	0
OP: OP 113	0	0
OP: OP 114	0	0
OP: OP 115	0	0
OP: OP 116	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 120	0	0
OP: OP 121	0	0
OP: OP 122	0	0
OP: OP 123	0	0
OP: OP 124	0	0
OP: OP 125	0	0
OP: OP 126	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 133	0	0
OP: OP 134	0	0
OP: OP 135	0	0
OP: OP 136	0	0
OP: OP 137	0	0
OP: OP 138	0	0
OP: OP 139	0	0
Route: Co Rd 30	0	0
Route: Co Rd W	0	0
Route: East St	0	0
Route: I-76 Northbound	0	0
Route: I-76 Southbound	0	0

No glare found

A - 5 DRA no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 25 Brush Airport	0	0
FP: FP 7 Brush Airport	0	0
OP: OP 100	0	0
OP: OP 101	0	0
OP: OP 102	0	0
OP: OP 103	0	0
OP: OP 104	0	0
OP: OP 105	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 108	0	0
OP: OP 109	0	0
OP: OP 110	0	0
OP: OP 111	0	0
OP: OP 112	0	0
OP: OP 113	0	0
OP: OP 114	0	0
OP: OP 115	0	0
OP: OP 116	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 120	0	0
OP: OP 121	0	0
OP: OP 122	0	0
OP: OP 123	0	0
OP: OP 124	0	0
OP: OP 125	0	0
OP: OP 126	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 133	0	0
OP: OP 134	0	0
OP: OP 135	0	0
OP: OP 136	0	0
OP: OP 137	0	0
OP: OP 138	0	0
OP: OP 139	0	0
Route: Co Rd 30	0	0
Route: Co Rd W	0	0
Route: East St	0	0
Route: I-76 Northbound	0	0
Route: I-76 Southbound	0	0

No glare found

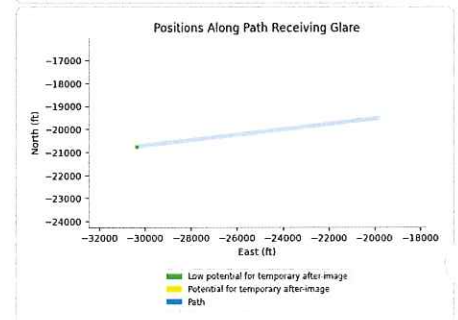
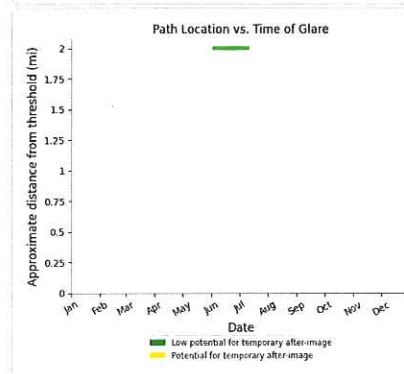
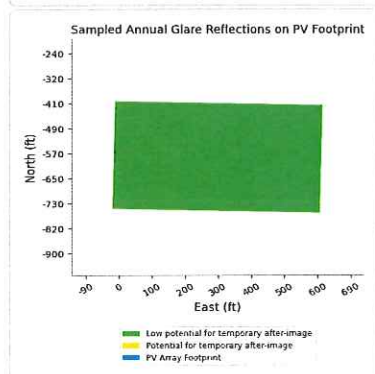
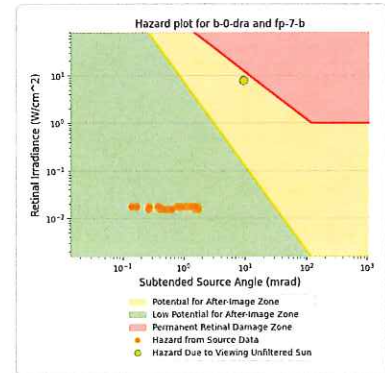
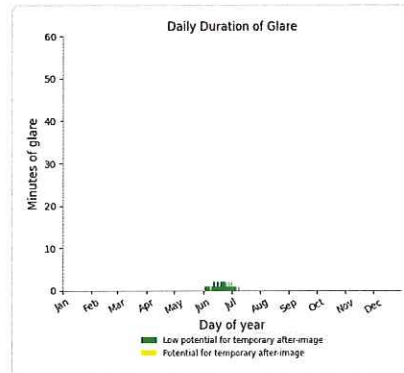
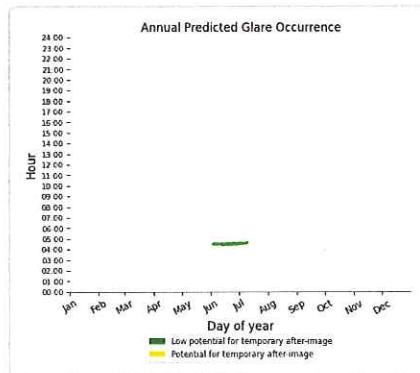
B-0 DRA low potential for temporary after-image

Component	Green glare (min)	Yellow glare (min)
FP: FP 25 Brush Airport	0	0
FP: FP 7 Brush Airport	47	0
OP: OP 100	0	0
OP: OP 101	0	0
OP: OP 102	0	0
OP: OP 103	0	0
OP: OP 104	0	0
OP: OP 105	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 108	0	0
OP: OP 109	0	0
OP: OP 110	0	0
OP: OP 111	135	0
OP: OP 112	0	0
OP: OP 113	139	0
OP: OP 114	0	0
OP: OP 115	79	0
OP: OP 116	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 120	0	0
OP: OP 121	0	0
OP: OP 122	0	0
OP: OP 123	0	0
OP: OP 124	0	0
OP: OP 125	0	0
OP: OP 126	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 133	0	0
OP: OP 134	0	0
OP: OP 135	0	0
OP: OP 136	0	0
OP: OP 137	0	0
OP: OP 138	0	0
OP: OP 139	0	0
Route: Co Rd 30	0	0
Route: Co Rd W	183	0
Route: East St	0	0
Route: I-76 Northbound	0	0

B-0 DRA: FP 25 Brush Airport*No glare found***B-0 DRA: FP 7 Brush Airport**

PV array is expected to produce the following glare for this receptor:

- 47 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.

**B-0 DRA: OP 100***No glare found***B-0 DRA: OP 101***No glare found***B-0 DRA: OP 102***No glare found***B-0 DRA: OP 103***No glare found***B-0 DRA: OP 104***No glare found***B-0 DRA: OP 105***No glare found*

B-0 DRA: OP 106

No glare found

B-0 DRA: OP 107

No glare found

B-0 DRA: OP 108

No glare found

B-0 DRA: OP 109

No glare found

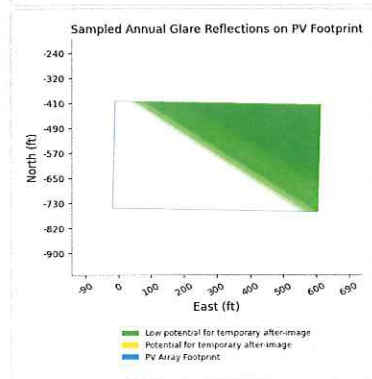
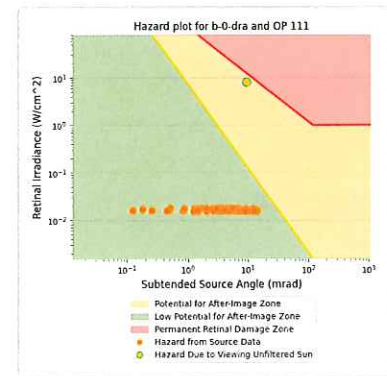
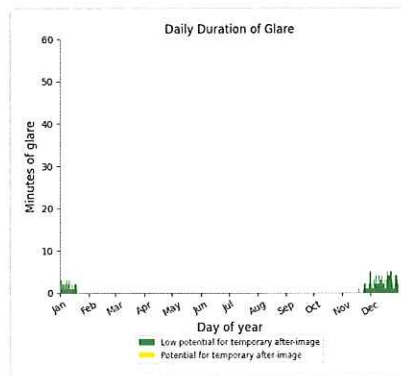
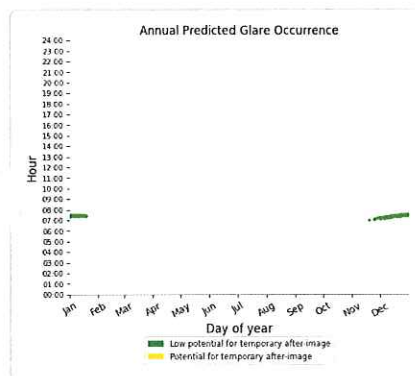
B-0 DRA: OP 110

No glare found

B-0 DRA: OP 111

PV array is expected to produce the following glare for this receptor:

- 135 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



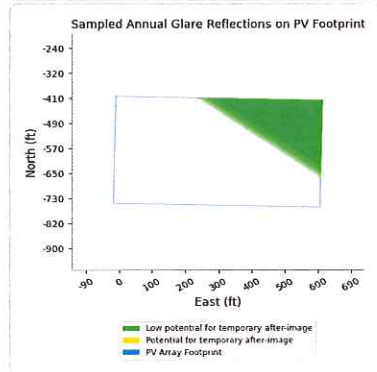
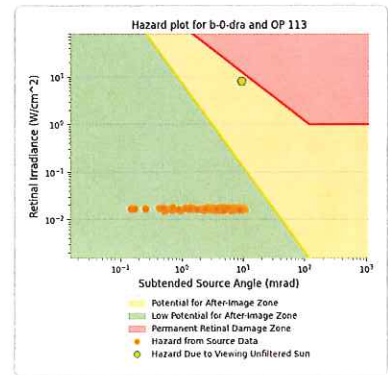
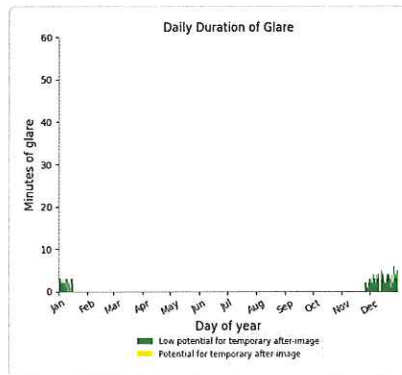
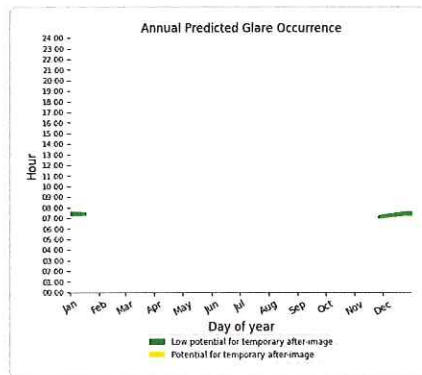
B-0 DRA: OP 112

No glare found

B-0 DRA: OP 113

PV array is expected to produce the following glare for this receptor:

- 139 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



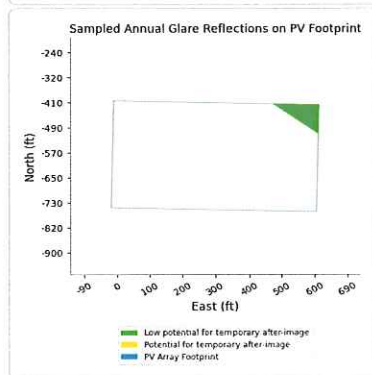
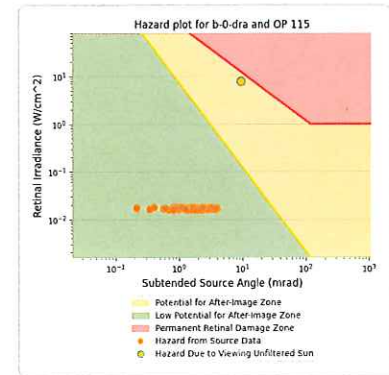
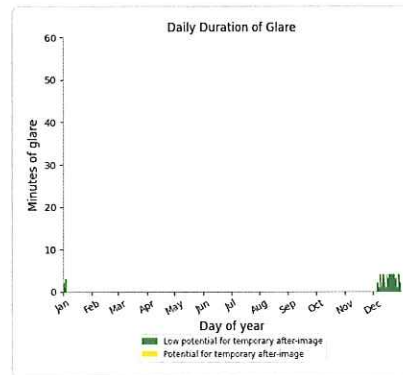
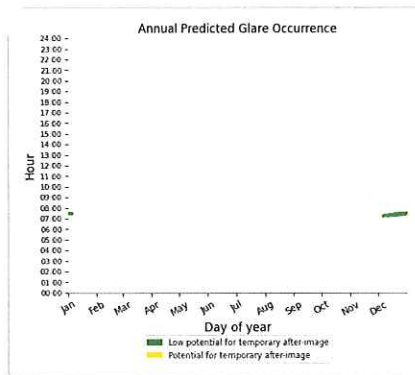
B-0 DRA: OP 114

No glare found

B-0 DRA: OP 115

PV array is expected to produce the following glare for this receptor:

- 79 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



B-0 DRA: OP 116

No glare found

B-0 DRA: OP 117

No glare found

B-0 DRA: OP 118

No glare found

B-0 DRA: OP 119

No glare found

B-0 DRA: OP 120

No glare found

B-0 DRA: OP 121

No glare found

B-0 DRA: OP 122

No glare found

B-0 DRA: OP 123

No glare found

B-0 DRA: OP 124

No glare found

B-0 DRA: OP 125

No glare found

B-0 DRA: OP 126

No glare found

B-0 DRA: OP 127

No glare found

B-0 DRA: OP 128

No glare found

B-0 DRA: OP 129

No glare found

B-0 DRA: OP 130

No glare found

B-0 DRA: OP 131

No glare found

B-0 DRA: OP 132

No glare found

B-0 DRA: OP 133

No glare found

B-0 DRA: OP 134

No glare found

B-0 DRA: OP 135

No glare found

B-0 DRA: OP 136

No glare found

B-0 DRA: OP 137

No glare found

B-0 DRA: OP 138

No glare found

B-0 DRA: OP 139

No glare found

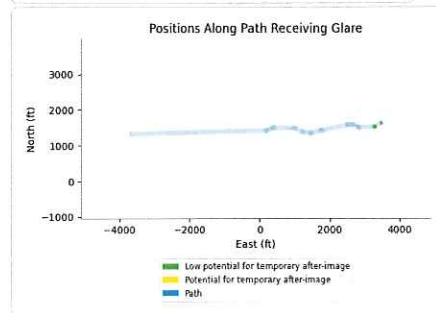
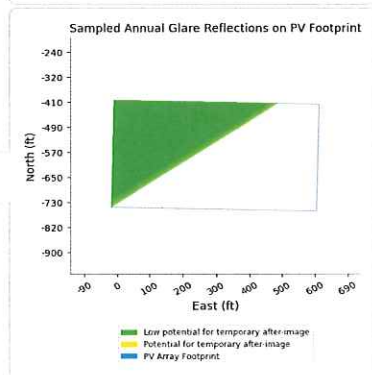
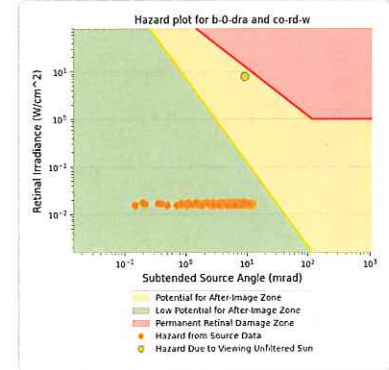
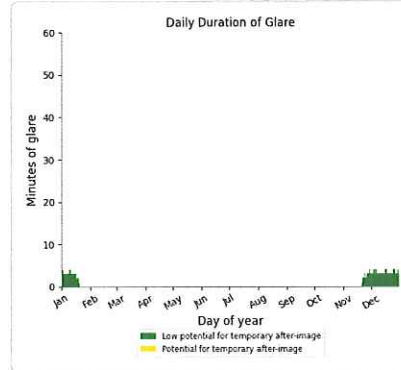
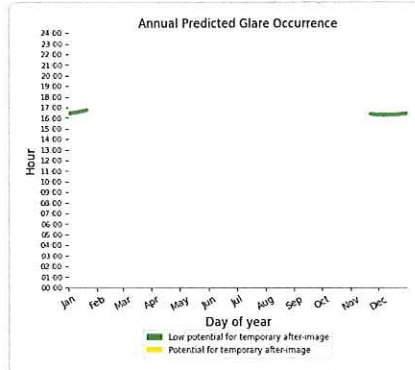
B-0 DRA: Co Rd 30

No glare found

B-0 DRA: Co Rd W

PV array is expected to produce the following glare for this receptor:

- 183 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



B-0 DRA: East St

No glare found

B-0 DRA: I-76 Northbound

No glare found

B-0 DRA: I-76 Southbound

No glare found

B - 10 DRA no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 25 Brush Airport	0	0
FP: FP 7 Brush Airport	0	0
OP: OP 100	0	0
OP: OP 101	0	0
OP: OP 102	0	0
OP: OP 103	0	0
OP: OP 104	0	0
OP: OP 105	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 108	0	0
OP: OP 109	0	0
OP: OP 110	0	0
OP: OP 111	0	0
OP: OP 112	0	0
OP: OP 113	0	0
OP: OP 114	0	0
OP: OP 115	0	0
OP: OP 116	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 120	0	0
OP: OP 121	0	0
OP: OP 122	0	0
OP: OP 123	0	0
OP: OP 124	0	0
OP: OP 125	0	0
OP: OP 126	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 133	0	0
OP: OP 134	0	0
OP: OP 135	0	0
OP: OP 136	0	0
OP: OP 137	0	0
OP: OP 138	0	0
OP: OP 139	0	0
Route: Co Rd 30	0	0
Route: Co Rd W	0	0
Route: East St	0	0
Route: I-76 Northbound	0	0
Route: I-76 Southbound	0	0

No glare found

B-5 DRA no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 25 Brush Airport	0	0
FP: FP 7 Brush Airport	0	0
OP: OP 100	0	0
OP: OP 101	0	0
OP: OP 102	0	0
OP: OP 103	0	0
OP: OP 104	0	0
OP: OP 105	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 108	0	0
OP: OP 109	0	0
OP: OP 110	0	0
OP: OP 111	0	0
OP: OP 112	0	0
OP: OP 113	0	0
OP: OP 114	0	0
OP: OP 115	0	0
OP: OP 116	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 120	0	0
OP: OP 121	0	0
OP: OP 122	0	0
OP: OP 123	0	0
OP: OP 124	0	0
OP: OP 125	0	0
OP: OP 126	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 133	0	0
OP: OP 134	0	0
OP: OP 135	0	0
OP: OP 136	0	0
OP: OP 137	0	0
OP: OP 138	0	0
OP: OP 139	0	0
Route: Co Rd 30	0	0
Route: Co Rd W	0	0
Route: East St	0	0
Route: I-76 Northbound	0	0
Route: I-76 Southbound	0	0

No glare found

Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not automatically account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographical obstructions.
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
- Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
- The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Refer to the **Help page** for detailed assumptions and limitations not listed here.

USS Camp Creek

CC_Ops 140-173_LRG_SAT_230510

Created May 10, 2023
 Updated May 10, 2023
 Time-step 1 minute
 Timezone offset UTC-7
 Minimum sun altitude 0.0 deg
 Site ID 90309.15899

Project type Advanced
 Project status: active
 Category 1 MW to 5 MW



Misc. Analysis Settings

DNI: varies (1,000.0 W/m² peak)
 Ocular transmission coefficient: 0.5
 Pupil diameter: 0.002 m
 Eye focal length: 0.017 m
 Sun subtended angle: 9.3 mrad

PV Analysis Methodology: Version 2
 Enhanced subtended angle calculation: On

Summary of Results

Glare with low potential for temporary after-image predicted

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
A - 0 DRA	SA tracking	SA tracking	2,279	0	-
A - 10 DRA	SA tracking	SA tracking	0	0	-
A - 5 DRA	SA tracking	SA tracking	0	0	-
B-0 DRA	SA tracking	SA tracking	686	0	-
B - 10 DRA	SA tracking	SA tracking	0	0	-
B-5 DRA	SA tracking	SA tracking	0	0	-

Component Data

PV Array(s)

Total PV footprint area: 29.1 acres

Name: A - 0 DRA

Footprint area: 4.8 acres

Axis tracking: Single-axis rotation

Backtracking: Shade-slope

Tracking axis orientation: 180.0 deg

Maximum tracking angle: 52.0 deg

Resting angle: 0.0 deg

Ground Coverage Ratio: 0.35

Rated power: -

Panel material: Smooth glass with AR coating

Vary reflectivity with sun position? Yes

Correlate slope error with surface type? Yes

Slope error: 8.43 mrad



Name: A - 10 DRA

Footprint area: 4.8 acres

Axis tracking: Single-axis rotation

Backtracking: Shade-slope

Tracking axis orientation: 0.0 deg

Maximum tracking angle: 52.0 deg

Resting angle: 10.0 deg

Ground Coverage Ratio: 0.35

Rated power: -

Panel material: Smooth glass with AR coating

Vary reflectivity with sun position? Yes

Correlate slope error with surface type? Yes

Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.317238	-103.512154	4185.04	6.50	4191.54
2	40.317202	-103.510037	4185.04	6.50	4191.54
3	40.316239	-103.510066	4187.04	6.50	4193.54
4	40.316275	-103.512182	4188.24	6.50	4194.74

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.317238	-103.512154	4185.04	6.50	4191.54
2	40.317202	-103.510037	4185.04	6.50	4191.54
3	40.316239	-103.510066	4187.04	6.50	4193.54
4	40.316275	-103.512182	4188.24	6.50	4194.74

Name: A - 5 DRA

Footprint area: 4.8 acres

Axis tracking: Single-axis rotation

Backtracking: Shade-slope

Tracking axis orientation: 0.0 deg

Maximum tracking angle: 52.0 deg

Resting angle: 5.0 deg

Ground Coverage Ratio: 0.35

Rated power: -

Panel material: Smooth glass with AR coating

Vary reflectivity with sun position? Yes

Correlate slope error with surface type? Yes

Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.317238	-103.512154	4185.04	6.50	4191.54
2	40.317202	-103.510037	4185.04	6.50	4191.54
3	40.316239	-103.510066	4187.04	6.50	4193.54
4	40.316275	-103.512182	4188.24	6.50	4194.74

Name: B-0 DRA

Footprint area: 4.9 acres

Axis tracking: Single-axis rotation

Backtracking: Shade-slope

Tracking axis orientation: 0.0 deg

Maximum tracking angle: 52.0 deg

Resting angle: 0.0 deg

Ground Coverage Ratio: 0.35

Rated power: -

Panel material: Smooth glass with AR coating

Vary reflectivity with sun position? Yes

Correlate slope error with surface type? Yes

Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.316129	-103.512186	4188.66	6.50	4195.16
2	40.316091	-103.509990	4188.20	6.50	4194.70
3	40.315129	-103.510018	4189.74	6.50	4196.24
4	40.315166	-103.512214	4196.13	6.50	4202.63

Name: B - 10 DRA

Footprint area: 4.9 acres

Axis tracking: Single-axis rotation

Backtracking: Shade-slope

Tracking axis orientation: 0.0 deg

Maximum tracking angle: 52.0 deg

Resting angle: 10.0 deg

Ground Coverage Ratio: 0.35

Rated power: -

Panel material: Smooth glass with AR coating

Vary reflectivity with sun position? Yes

Correlate slope error with surface type? Yes

Slope error: 8.43 mrad



Name: B-5 DRA

Footprint area: 4.9 acres

Axis tracking: Single-axis rotation

Backtracking: Shade-slope

Tracking axis orientation: 0.0 deg

Maximum tracking angle: 52.0 deg

Resting angle: 5.0 deg

Ground Coverage Ratio: 0.35

Rated power: -

Panel material: Smooth glass with AR coating

Vary reflectivity with sun position? Yes

Correlate slope error with surface type? Yes

Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.316129	-103.512186	4188.66	6.50	4195.16
2	40.316091	-103.509990	4188.20	6.50	4194.70
3	40.315129	-103.510018	4189.74	6.50	4196.24
4	40.315166	-103.512214	4196.13	6.50	4202.63

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.316129	-103.512186	4188.66	6.50	4195.16
2	40.316091	-103.509990	4188.20	6.50	4194.70
3	40.315129	-103.510018	4189.74	6.50	4196.24
4	40.315166	-103.512214	4196.13	6.50	4202.63

Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
OP 140	40.325587	-103.518257	4171.92	5.00	4176.92
OP 141	40.325587	-103.518257	4171.92	15.00	4186.92
OP 142	40.325996	-103.518250	4172.71	5.00	4177.71
OP 143	40.325996	-103.518250	4172.71	15.00	4187.71
OP 144	40.326629	-103.518289	4175.20	5.00	4180.20
OP 145	40.326629	-103.518289	4175.20	15.00	4190.20
OP 146	40.327002	-103.518147	4173.68	5.00	4178.68
OP 147	40.327002	-103.518147	4173.68	15.00	4188.68
OP 148	40.327256	-103.518193	4173.97	5.00	4178.97
OP 149	40.327256	-103.518193	4173.97	15.00	4188.97
OP 150	40.327635	-103.518151	4171.82	5.00	4176.82
OP 151	40.327635	-103.518151	4171.82	15.00	4186.82
OP 152	40.327841	-103.518177	4171.30	5.00	4176.30
OP 153	40.327841	-103.518177	4171.30	15.00	4186.30
OP 154	40.328265	-103.518328	4172.64	5.00	4177.64
OP 155	40.328265	-103.518328	4172.64	15.00	4187.64
OP 156	40.328647	-103.518640	4172.14	5.00	4177.14
OP 157	40.328647	-103.518640	4172.14	15.00	4187.14
OP 158	40.320801	-103.513741	4186.33	5.00	4191.33
OP 159	40.320801	-103.513741	4186.33	15.00	4201.33
OP 160	40.321625	-103.510660	4180.58	5.00	4185.58
OP 161	40.321625	-103.510660	4180.58	15.00	4195.58
OP 162	40.321176	-103.510288	4182.00	5.00	4187.00
OP 163	40.321176	-103.510288	4182.00	15.00	4197.00
OP 164	40.321732	-103.501365	4182.99	5.00	4187.99
OP 165	40.321732	-103.501365	4182.99	15.00	4197.99
OP 166	40.321546	-103.500711	4187.60	5.00	4192.60
OP 167	40.321546	-103.500711	4187.60	15.00	4202.60
OP 168	40.321971	-103.499906	4185.67	5.00	4190.67
OP 169	40.321971	-103.499906	4185.67	15.00	4200.67
OP 170	40.322696	-103.499819	4180.38	5.00	4185.38
OP 171	40.322696	-103.499819	4180.38	15.00	4195.38
OP 172	40.306677	-103.522564	4220.00	5.00	4225.00
OP 173	40.306677	-103.522564	4220.00	15.00	4235.00

Summary of PV Glare Analysis

PV configuration and total predicted glare

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced	Data File
	deg	deg	min	min	kWh	
A - 0 DRA	SA tracking	SA tracking	2,279	0	-	
A - 10 DRA	SA tracking	SA tracking	0	0	-	-
A - 5 DRA	SA tracking	SA tracking	0	0	-	-
B-0 DRA	SA tracking	SA tracking	686	0	-	
B - 10 DRA	SA tracking	SA tracking	0	0	-	-
B-5 DRA	SA tracking	SA tracking	0	0	-	-

Distinct glare per month

Excludes overlapping glare from PV array for multiple receptors at matching time(s)

PV	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
a-0-dra (green)	125	4	0	0	0	0	0	0	0	0	93	134
a-0-dra (yellow)	0	0	0	0	0	0	0	0	0	0	0	0
b-0-dra (green)	42	0	0	0	0	0	0	0	0	0	12	104
b-0-dra (yellow)	0	0	0	0	0	0	0	0	0	0	0	0

PV & Receptor Analysis Results

Results for each PV array and receptor

A - 0 DRA low potential for temporary after-image

Component	Green glare (min)	Yellow glare (min)
OP: OP 140	0	0
OP: OP 141	0	0
OP: OP 142	0	0
OP: OP 143	0	0
OP: OP 144	0	0
OP: OP 145	0	0
OP: OP 146	0	0
OP: OP 147	0	0
OP: OP 148	0	0
OP: OP 149	0	0
OP: OP 150	0	0
OP: OP 151	0	0
OP: OP 152	0	0
OP: OP 153	0	0
OP: OP 154	0	0
OP: OP 155	0	0
OP: OP 156	0	0

OP: OP 157	0	0
OP: OP 158	0	0
OP: OP 159	0	0
OP: OP 160	0	0
OP: OP 161	0	0
OP: OP 162	0	0
OP: OP 163	0	0
OP: OP 164	267	0
OP: OP 165	288	0
OP: OP 166	331	0
OP: OP 167	356	0
OP: OP 168	270	0
OP: OP 169	335	0
OP: OP 170	186	0
OP: OP 171	246	0
OP: OP 172	0	0
OP: OP 173	0	0

A - 0 DRA: OP 140

No glare found

A - 0 DRA: OP 141

No glare found

A - 0 DRA: OP 142

No glare found

A - 0 DRA: OP 143

No glare found

A - 0 DRA: OP 144

No glare found

A - 0 DRA: OP 145

No glare found

A - 0 DRA: OP 146

No glare found

A - 0 DRA: OP 147

No glare found

A - 0 DRA: OP 148

No glare found

A - 0 DRA: OP 149

No glare found

A - 0 DRA: OP 150

No glare found

A - 0 DRA: OP 151

No glare found

A - 0 DRA: OP 152

No glare found

A - 0 DRA: OP 153

No glare found

A - 0 DRA: OP 154

No glare found

A - 0 DRA: OP 155

No glare found

A - 0 DRA: OP 156

No glare found

A - 0 DRA: OP 157

No glare found

A - 0 DRA: OP 158

No glare found

A - 0 DRA: OP 159

No glare found

A - 0 DRA: OP 160

No glare found

A - 0 DRA: OP 161

No glare found

A - 0 DRA: OP 162

No glare found

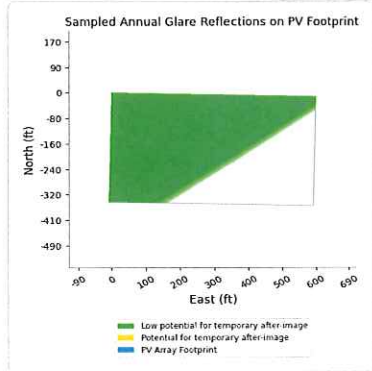
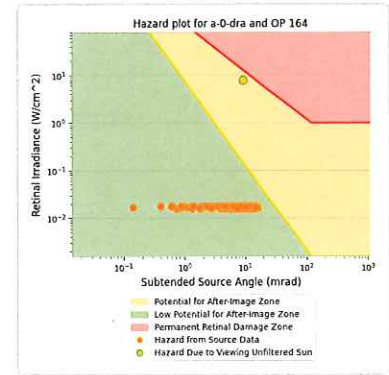
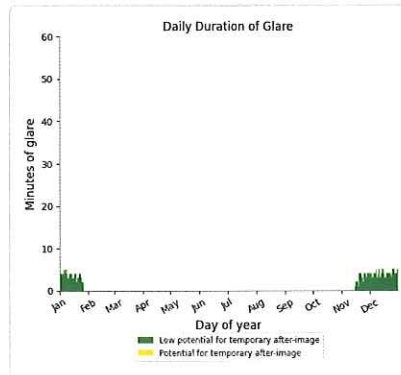
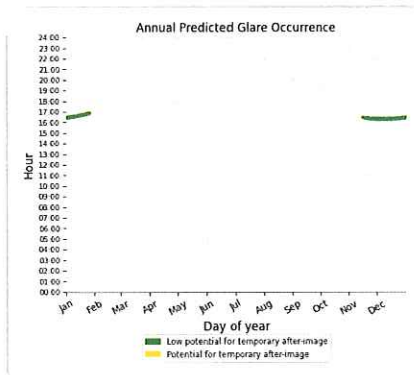
A - 0 DRA: OP 163

No glare found

A - 0 DRA: OP 164

PV array is expected to produce the following glare for this receptor:

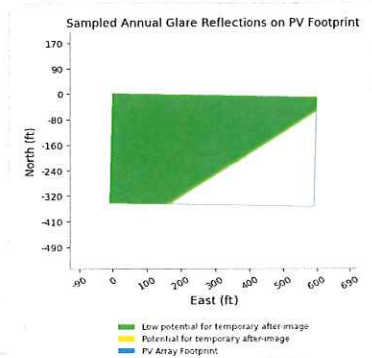
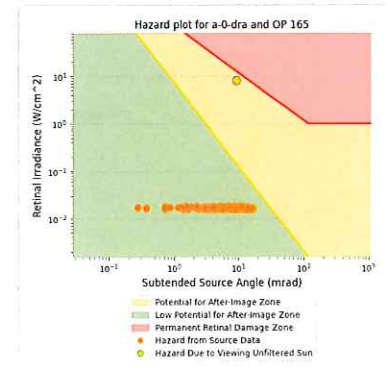
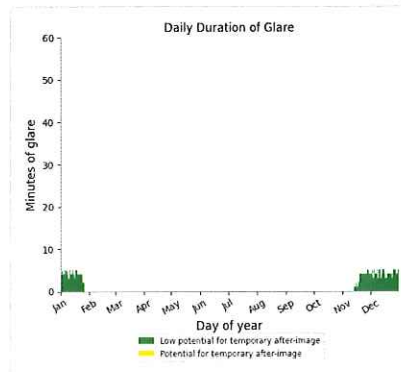
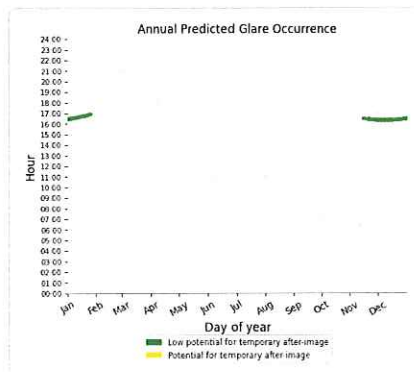
- 267 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



. - 0 DRA: OP 165

PV array is expected to produce the following glare for this receptor:

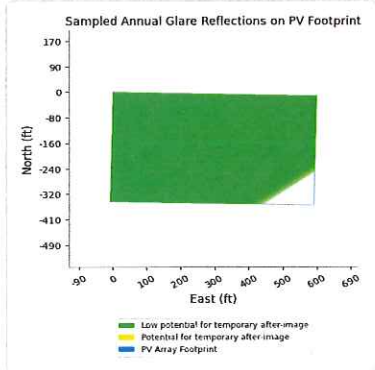
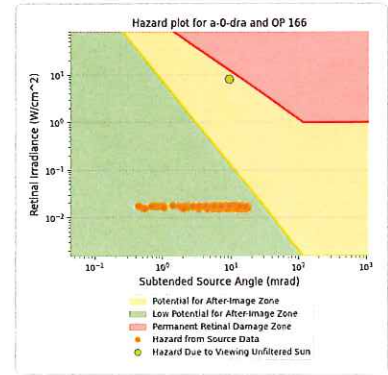
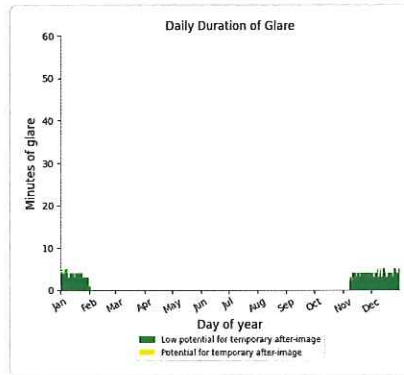
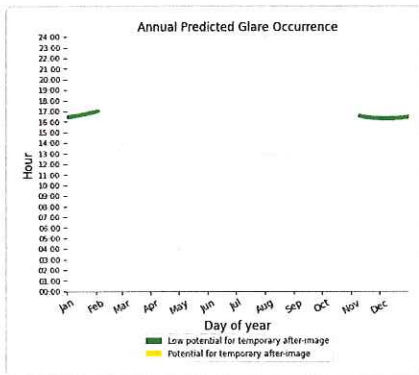
- 288 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



A - 0 DRA: OP 166

PV array is expected to produce the following glare for this receptor:

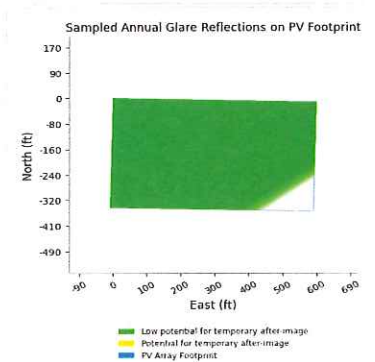
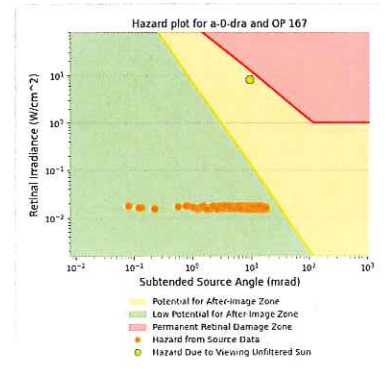
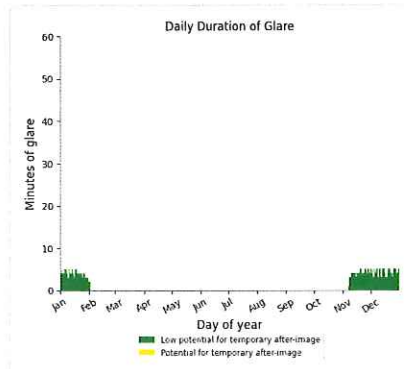
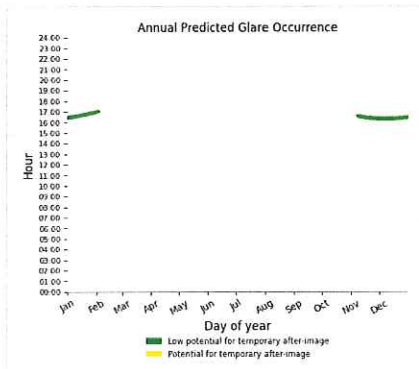
- 331 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



A - 0 DRA: OP 167

PV array is expected to produce the following glare for this receptor:

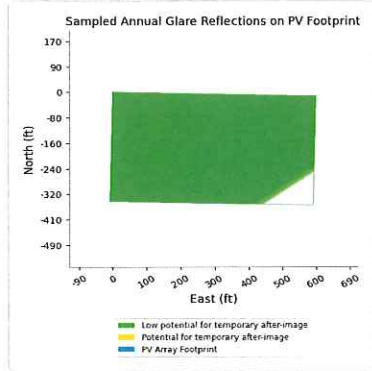
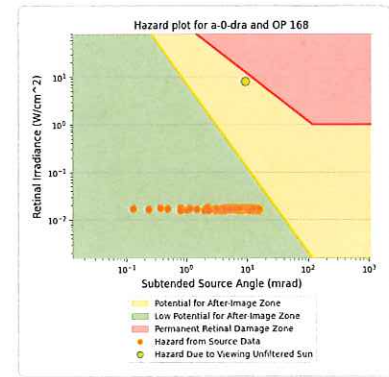
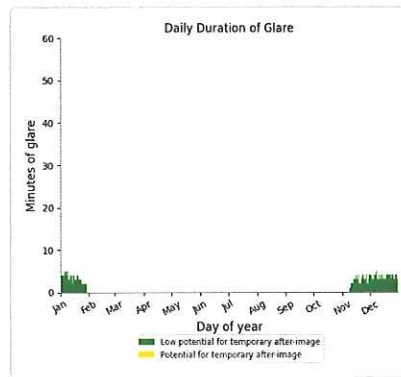
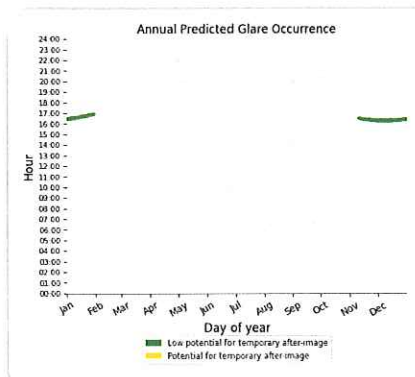
- 356 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



A - 0 DRA: OP 168

PV array is expected to produce the following glare for this receptor:

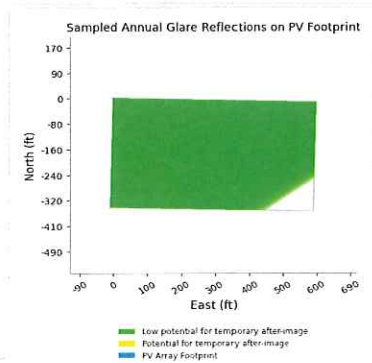
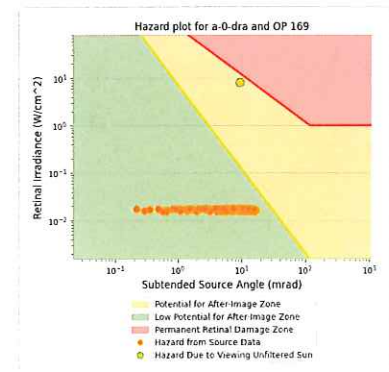
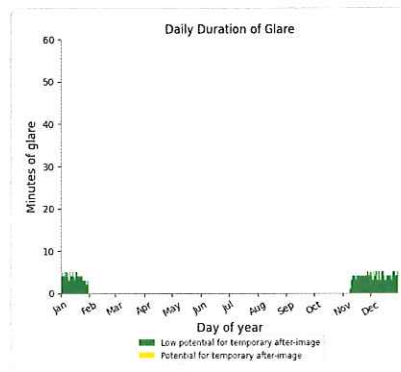
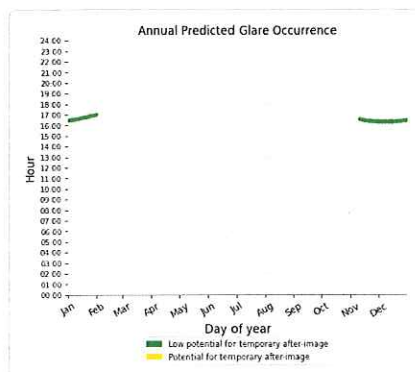
- 270 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



A - 0 DRA: OP 169

PV array is expected to produce the following glare for this receptor:

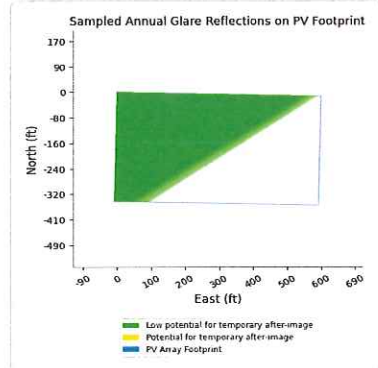
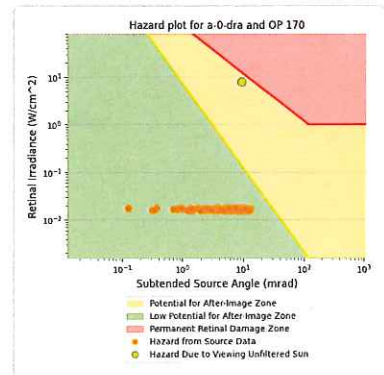
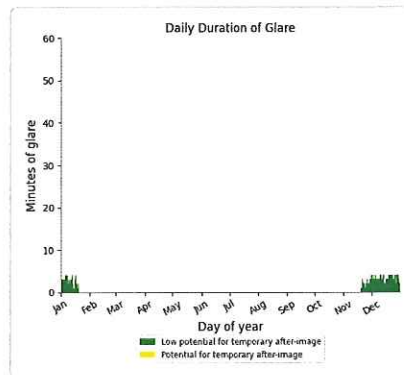
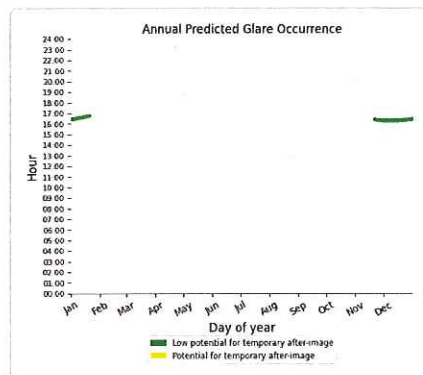
- 335 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



A - 0 DRA: OP 170

PV array is expected to produce the following glare for this receptor:

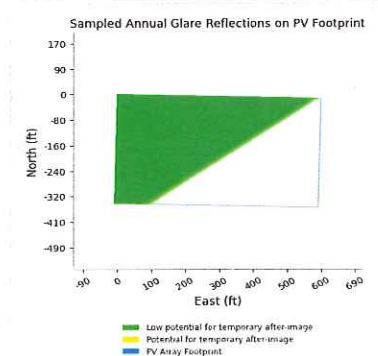
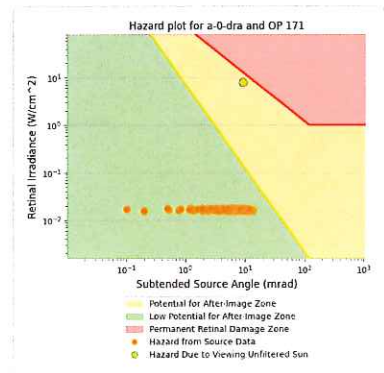
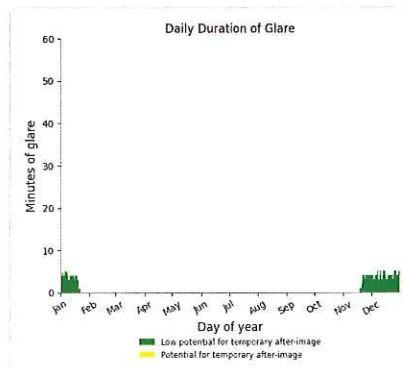
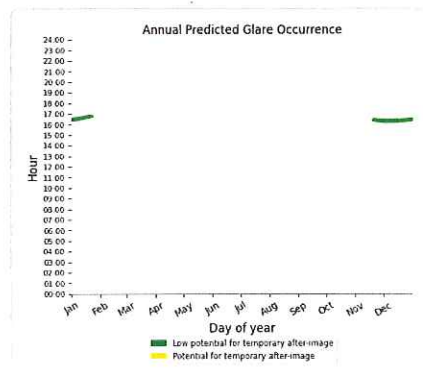
- 186 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



A - 0 DRA: OP 171

PV array is expected to produce the following glare for this receptor:

- 246 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



A - 0 DRA: OP 172

No glare found

A - 0 DRA: OP 173

No glare found

A - 10 DRA no glare found

Component	Green glare (min)	Yellow glare (min)
OP: OP 140	0	0
OP: OP 141	0	0
OP: OP 142	0	0
OP: OP 143	0	0
OP: OP 144	0	0
OP: OP 145	0	0
OP: OP 146	0	0
OP: OP 147	0	0
OP: OP 148	0	0
OP: OP 149	0	0
OP: OP 150	0	0
OP: OP 151	0	0
OP: OP 152	0	0
OP: OP 153	0	0
OP: OP 154	0	0
OP: OP 155	0	0
OP: OP 156	0	0
OP: OP 157	0	0
OP: OP 158	0	0
OP: OP 159	0	0
OP: OP 160	0	0
OP: OP 161	0	0
OP: OP 162	0	0
OP: OP 163	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 166	0	0
OP: OP 167	0	0
OP: OP 168	0	0
OP: OP 169	0	0
OP: OP 170	0	0
OP: OP 171	0	0
OP: OP 172	0	0
OP: OP 173	0	0

No glare found

A - 5 DRA no glare found

Component	Green glare (min)	Yellow glare (min)
OP: OP 140	0	0
OP: OP 141	0	0
OP: OP 142	0	0
OP: OP 143	0	0
OP: OP 144	0	0
OP: OP 145	0	0
OP: OP 146	0	0
OP: OP 147	0	0
OP: OP 148	0	0
OP: OP 149	0	0
OP: OP 150	0	0
OP: OP 151	0	0
OP: OP 152	0	0
OP: OP 153	0	0
OP: OP 154	0	0
OP: OP 155	0	0
OP: OP 156	0	0
OP: OP 157	0	0
OP: OP 158	0	0
OP: OP 159	0	0
OP: OP 160	0	0
OP: OP 161	0	0
OP: OP 162	0	0
OP: OP 163	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 166	0	0
OP: OP 167	0	0
OP: OP 168	0	0
OP: OP 169	0	0
OP: OP 170	0	0
OP: OP 171	0	0
OP: OP 172	0	0
OP: OP 173	0	0

No glare found

B-0 DRA low potential for temporary after-image

Component	Green glare (min)	Yellow glare (min)
OP: OP 140	0	0
OP: OP 141	0	0
OP: OP 142	0	0
OP: OP 143	0	0

OP: OP 144	0	0
OP: OP 145	0	0
OP: OP 146	0	0
OP: OP 147	0	0
OP: OP 148	0	0
OP: OP 149	0	0
OP: OP 150	0	0
OP: OP 151	0	0
OP: OP 152	0	0
OP: OP 153	0	0
OP: OP 154	0	0
OP: OP 155	0	0
OP: OP 156	0	0
OP: OP 157	0	0
OP: OP 158	0	0
OP: OP 159	0	0
OP: OP 160	0	0
OP: OP 161	0	0
OP: OP 162	0	0
OP: OP 163	0	0
OP: OP 164	43	0
OP: OP 165	49	0
OP: OP 166	146	0
OP: OP 167	158	0
OP: OP 168	140	0
OP: OP 169	150	0
OP: OP 170	0	0
OP: OP 171	0	0
OP: OP 172	0	0
OP: OP 173	0	0

B-0 DRA: OP 140

No glare found

B-0 DRA: OP 141

No glare found

B-0 DRA: OP 142

No glare found

B-0 DRA: OP 143

No glare found

B-0 DRA: OP 144

No glare found

B-0 DRA: OP 145

No glare found

B-0 DRA: OP 146

No glare found

B-0 DRA: OP 147

No glare found

B-0 DRA: OP 148

No glare found

B-0 DRA: OP 149

No glare found

B-0 DRA: OP 150

No glare found

B-0 DRA: OP 151

No glare found

B-0 DRA: OP 152

No glare found

B-0 DRA: OP 153

No glare found

B-0 DRA: OP 154

No glare found

B-0 DRA: OP 155

No glare found

B-0 DRA: OP 156

No glare found

B-0 DRA: OP 157

No glare found

B-0 DRA: OP 158

No glare found

B-0 DRA: OP 159

No glare found

B-0 DRA: OP 160

No glare found

B-0 DRA: OP 161

No glare found

B-0 DRA: OP 162

No glare found

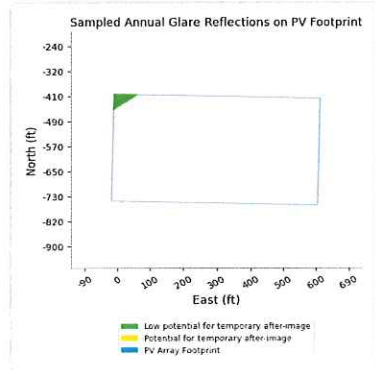
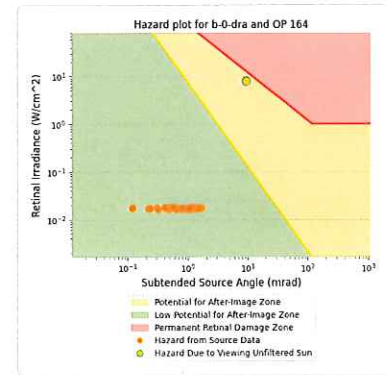
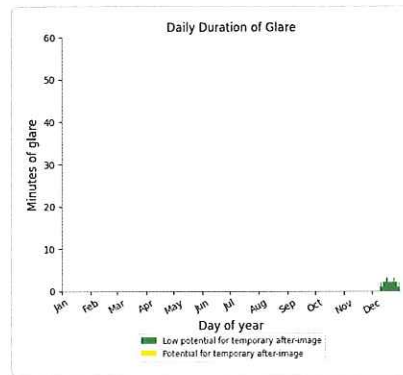
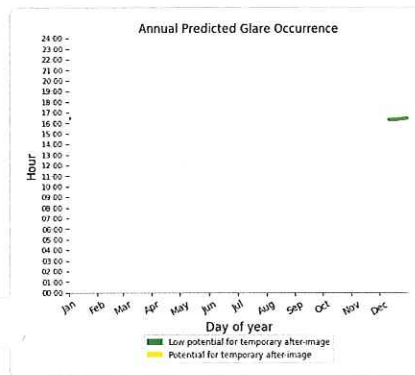
B-0 DRA: OP 163

No glare found

B-0 DRA: OP 164

PV array is expected to produce the following glare for this receptor:

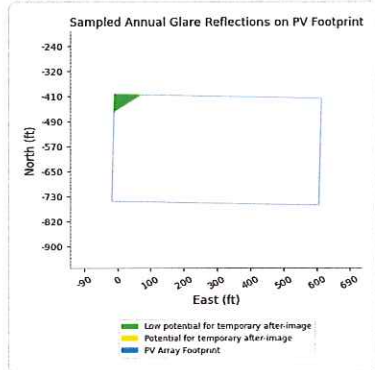
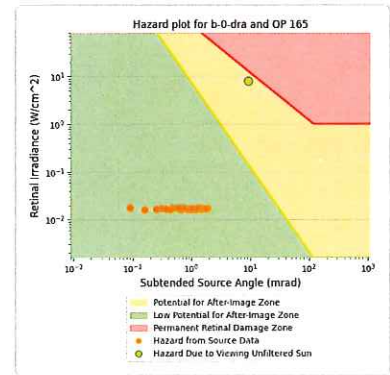
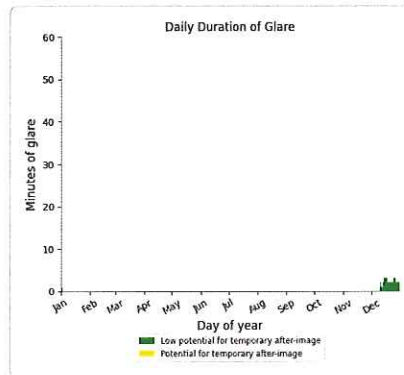
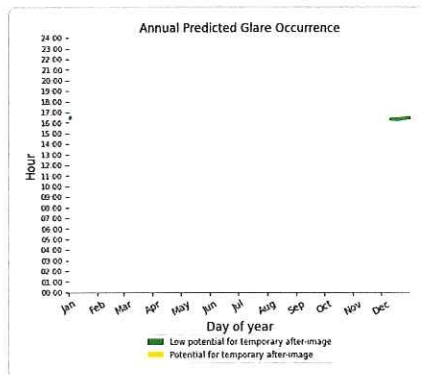
- 43 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



B-0 DRA: OP 165

PV array is expected to produce the following glare for this receptor:

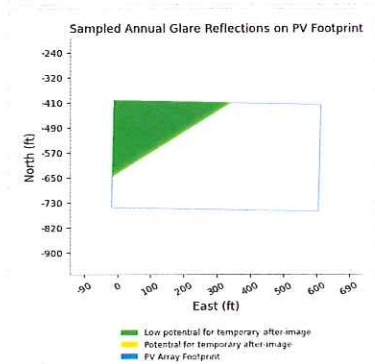
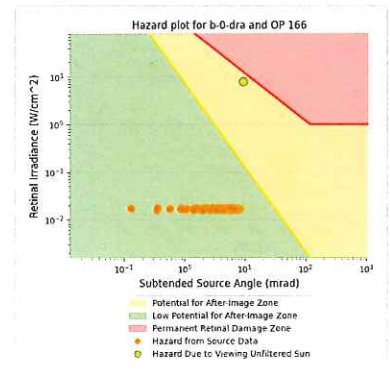
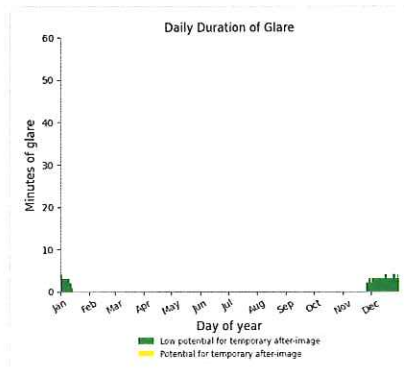
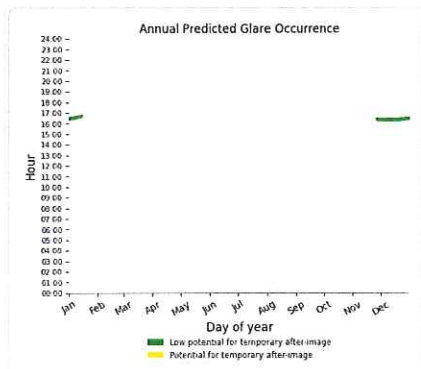
- 49 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



B-0 DRA: OP 166

PV array is expected to produce the following glare for this receptor:

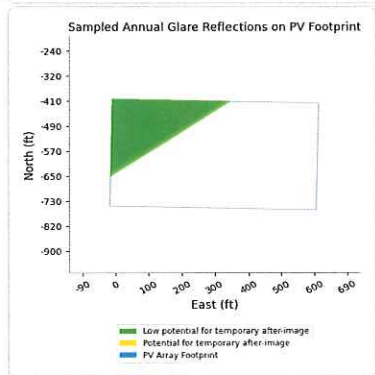
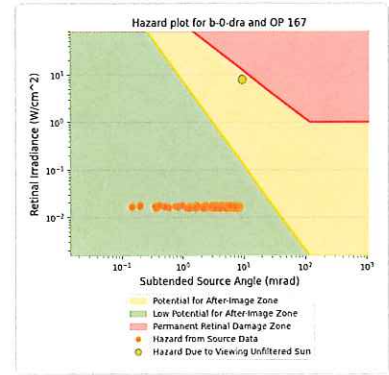
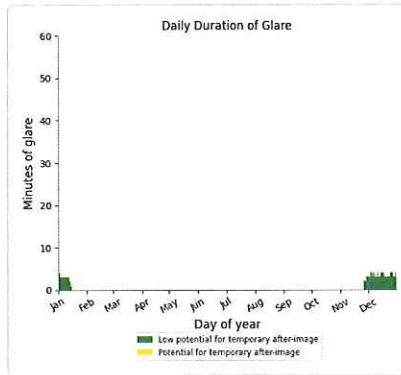
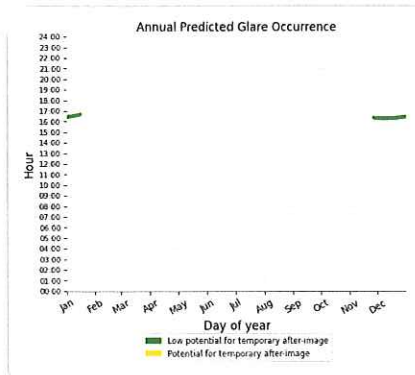
- 146 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



B-0 DRA: OP 167

PV array is expected to produce the following glare for this receptor:

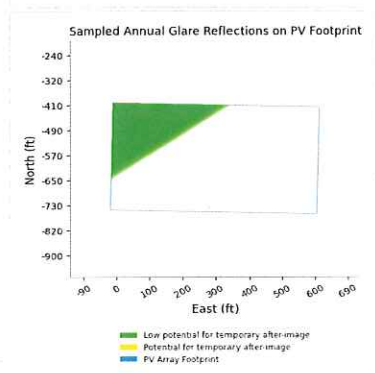
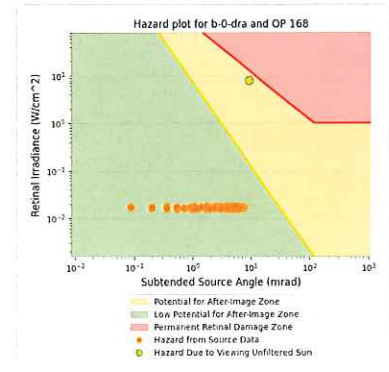
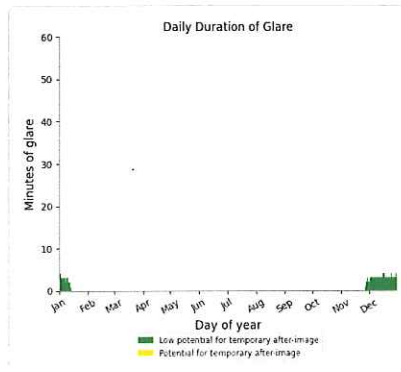
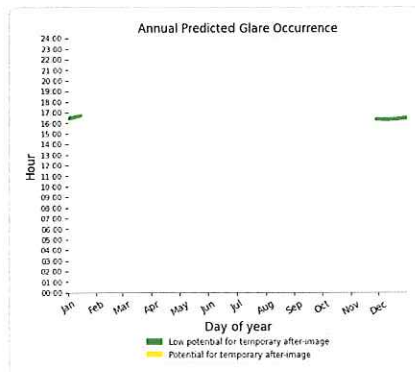
- 158 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



B-0 DRA: OP 168

PV array is expected to produce the following glare for this receptor:

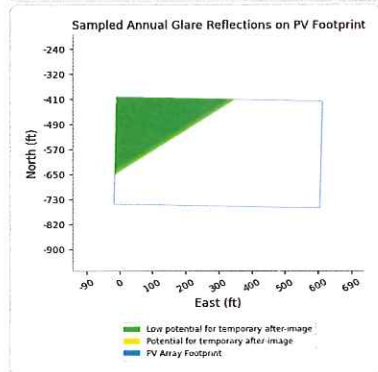
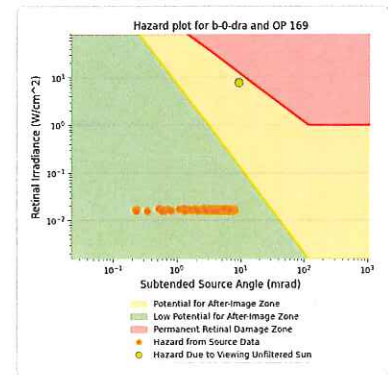
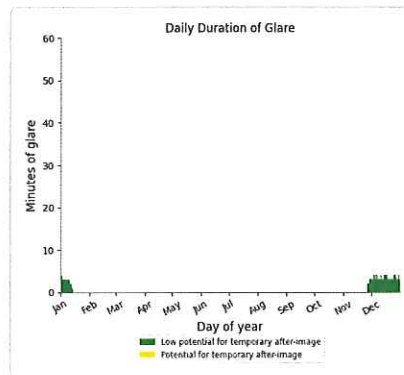
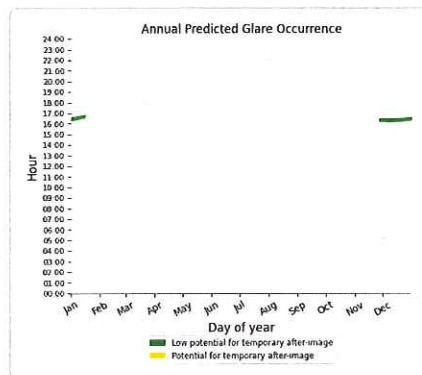
- 140 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



B-0 DRA: OP 169

PV array is expected to produce the following glare for this receptor:

- 150 minutes of "green" glare with low potential to cause temporary after-image.
- 0 minutes of "yellow" glare with potential to cause temporary after-image.



B-0 DRA: OP 170

No glare found

B-0 DRA: OP 171

No glare found

B-0 DRA: OP 172

No glare found

B-0 DRA: OP 173

No glare found

B - 10 DRA no glare found

Component	Green glare (min)	Yellow glare (min)
OP: OP 140	0	0
OP: OP 141	0	0
OP: OP 142	0	0
OP: OP 143	0	0
OP: OP 144	0	0
OP: OP 145	0	0
OP: OP 146	0	0
OP: OP 147	0	0
OP: OP 148	0	0
OP: OP 149	0	0
OP: OP 150	0	0
OP: OP 151	0	0
OP: OP 152	0	0
OP: OP 153	0	0
OP: OP 154	0	0
OP: OP 155	0	0
OP: OP 156	0	0
OP: OP 157	0	0
OP: OP 158	0	0
OP: OP 159	0	0
OP: OP 160	0	0
OP: OP 161	0	0
OP: OP 162	0	0
OP: OP 163	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 166	0	0
OP: OP 167	0	0
OP: OP 168	0	0
OP: OP 169	0	0
OP: OP 170	0	0
OP: OP 171	0	0
OP: OP 172	0	0
OP: OP 173	0	0

No glare found

B-5 DRA no glare found

Component	Green glare (min)	Yellow glare (min)
OP: OP 140	0	0
OP: OP 141	0	0
OP: OP 142	0	0
OP: OP 143	0	0
OP: OP 144	0	0
OP: OP 145	0	0
OP: OP 146	0	0
OP: OP 147	0	0
OP: OP 148	0	0
OP: OP 149	0	0
OP: OP 150	0	0
OP: OP 151	0	0
OP: OP 152	0	0
OP: OP 153	0	0
OP: OP 154	0	0
OP: OP 155	0	0
OP: OP 156	0	0
OP: OP 157	0	0
OP: OP 158	0	0
OP: OP 159	0	0
OP: OP 160	0	0
OP: OP 161	0	0
OP: OP 162	0	0
OP: OP 163	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 166	0	0
OP: OP 167	0	0
OP: OP 168	0	0
OP: OP 169	0	0
OP: OP 170	0	0
OP: OP 171	0	0
OP: OP 172	0	0
OP: OP 173	0	0

No glare found

Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not automatically account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographical obstructions.
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.

- Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
- The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Refer to the **Help** page for detailed assumptions and limitations not listed here.

Appendix C
FAA 2021
Glare Adherence Policy

FORGESOLAR GLARE ANALYSIS

Project: **USS Camp Creek**

Site configuration: **CC_OPs100-139_LRG_SAT_230510**

Created 10 May, 2023

Updated 10 May, 2023

Time-step 1 minute

Timezone offset UTC-7

Minimum sun altitude 0.0 deg

DNI peaks at 1,000.0 W/m²

Site ID 90308.15899

Ocular transmission coefficient 0.5

Pupil diameter 0.002 m

Eye focal length 0.017 m

Sun subtended angle 9.3 mrad

PV analysis methodology V2



Glare Policy Adherence

The following table estimates the policy adherence of this glare analysis according to the **2021** U.S. Federal Aviation Administration Policy:

Review of Solar Energy System Projects on Federally-Obligated Airports

This policy may require the following criteria be met for solar energy systems on airport property:

- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height.
- Default analysis and observer characteristics, including 1-minute time step.

ForgeSolar is not affiliated with the U.S. FAA and does not represent or speak officially for the U.S. FAA. ForgeSolar cannot approve or deny projects - results are informational only. Contact the relevant airport and FAA district office for information on policy and requirements.

COMPONENT	STATUS	DESCRIPTION
Analysis parameters	PASS	Analysis time interval and eye characteristics used are acceptable
ATCT(s)	N/A	No ATCT receptors assessed

The referenced policy can be read at <https://www.federalregister.gov/d/2021-09862>

Component Data

This report includes results for PV arrays and Observation Point ("OP") receptors marked as ATCTs. Components that are not pertinent to the policy, such as routes, flight paths, and vertical surfaces, are excluded.

PV Arrays

Name: A - 0 DRA

Axis tracking: Single-axis rotation

Backtracking: Shade-slope

Tracking axis orientation: 180.0°

Max tracking angle: 52.0°

Resting angle: 0.0°

Ground Coverage Ratio: 0.35

Rated power: -

Panel material: Smooth glass with AR coating

Reflectivity: Vary with sun

Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	40.317238	-103.512154	4185.04	6.50	4191.54
2	40.317202	-103.510037	4185.04	6.50	4191.54
3	40.316239	-103.510066	4187.04	6.50	4193.54
4	40.316275	-103.512182	4188.24	6.50	4194.74

Name: A - 10 DRA

Axis tracking: Single-axis rotation

Backtracking: Shade-slope

Tracking axis orientation: 0.0°

Max tracking angle: 52.0°

Resting angle: 10.0°

Ground Coverage Ratio: 0.35

Rated power: -

Panel material: Smooth glass with AR coating

Reflectivity: Vary with sun

Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	40.317238	-103.512154	4185.04	6.50	4191.54
2	40.317202	-103.510037	4185.04	6.50	4191.54
3	40.316239	-103.510066	4187.04	6.50	4193.54
4	40.316275	-103.512182	4188.24	6.50	4194.74

Name: A - 5 DRA

Axis tracking: Single-axis rotation

Backtracking: Shade-slope

Tracking axis orientation: 0.0°

Max tracking angle: 52.0°

Resting angle: 5.0°

Ground Coverage Ratio: 0.35

Rated power: -

Panel material: Smooth glass with AR coating

Reflectivity: Vary with sun

Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	40.317238	-103.512154	4185.04	6.50	4191.54
2	40.317202	-103.510037	4185.04	6.50	4191.54
3	40.316239	-103.510066	4187.04	6.50	4193.54
4	40.316275	-103.512182	4188.24	6.50	4194.74

Name: B-0 DRA

Axis tracking: Single-axis rotation

Backtracking: Shade-slope

Tracking axis orientation: 0.0°

Max tracking angle: 52.0°

Resting angle: 0.0°

Ground Coverage Ratio: 0.35

Rated power: -

Panel material: Smooth glass with AR coating

Reflectivity: Vary with sun

Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	40.316129	-103.512186	4188.66	6.50	4195.16
2	40.316091	-103.509990	4188.20	6.50	4194.70
3	40.315129	-103.510018	4189.74	6.50	4196.24
4	40.315166	-103.512214	4196.13	6.50	4202.63

Name: B - 10 DRA

Axis tracking: Single-axis rotation

Backtracking: Shade-slope

Tracking axis orientation: 0.0°

Max tracking angle: 52.0°

Resting angle: 10.0°

Ground Coverage Ratio: 0.35

Rated power: -

Panel material: Smooth glass with AR coating

Reflectivity: Vary with sun

Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	40.316129	-103.512186	4188.66	6.50	4195.16
2	40.316091	-103.509990	4188.20	6.50	4194.70
3	40.315129	-103.510018	4189.74	6.50	4196.24
4	40.315166	-103.512214	4196.13	6.50	4202.63

Name: B-5 DRA

Axis tracking: Single-axis rotation

Backtracking: Shade-slope

Tracking axis orientation: 0.0°

Max tracking angle: 52.0°

Resting angle: 5.0°

Ground Coverage Ratio: 0.35

Rated power: -

Panel material: Smooth glass with AR coating

Reflectivity: Vary with sun

Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	40.316129	-103.512186	4188.66	6.50	4195.16
2	40.316091	-103.509990	4188.20	6.50	4194.70
3	40.315129	-103.510018	4189.74	6.50	4196.24
4	40.315166	-103.512214	4196.13	6.50	4202.63

Observation Point ATCT Receptors

No ATCT receptors were included in the analysis.

Glare Analysis Results

Summary of Results No glare predicted

PV Array	Tilt °	Orient °	Annual Green Glare		Annual Yellow Glare		Energy kWh
			min	hr	min	hr	
A - 0 DRA	SA tracking	SA tracking	0	0.0	0	0.0	-
A - 10 DRA	SA tracking	SA tracking	0	0.0	0	0.0	-
A - 5 DRA	SA tracking	SA tracking	0	0.0	0	0.0	-
B-0 DRA	SA tracking	SA tracking	0	0.0	0	0.0	-
B - 10 DRA	SA tracking	SA tracking	0	0.0	0	0.0	-
B-5 DRA	SA tracking	SA tracking	0	0.0	0	0.0	-

No ATCT receptors were included in the analysis.

PV: A - 0 DRA

No ATCT receptors assessed.

PV: A - 10 DRA

No ATCT receptors assessed.

PV: A - 5 DRA

No ATCT receptors assessed.

PV: B-0 DRA

No ATCT receptors assessed.

PV: B - 10 DRA

No ATCT receptors assessed.

PV: B-5 DRA

No ATCT receptors assessed.

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.

"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.

Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.

The algorithm does not rigorously represent the detailed geometry of a system; detailed features such as gaps between modules, variable height of the PV array, and support structures may impact actual glare results. However, we have validated our models against several systems, including a PV array causing glare to the air-traffic control tower at Manchester-Boston Regional Airport and several sites in Albuquerque, and the tool accurately predicted the occurrence and intensity of glare at different times and days of the year.

Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare. This primarily affects V1 analyses of path receptors.

Random number computations are utilized by various steps of the annual hazard analysis algorithm. Predicted minutes of glare can vary between runs as a result. This limitation primarily affects analyses of Observation Point receptors, including ATCTs. Note that the SGHAT/ ForgeSolar methodology has always relied on an analytical, qualitative approach to accurately determine the overall hazard (i.e. green vs. yellow) of expected glare on an annual basis.

The analysis does not automatically consider obstacles (either man-made or natural) between the observation points and the prescribed solar installation that may obstruct observed glare, such as trees, hills, buildings, etc.

The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)

The variable direct normal irradiance (DNI) feature (if selected) scales the user-prescribed peak DNI using a typical clear-day irradiance profile. This profile has a lower DNI in the mornings and evenings and a maximum at solar noon. The scaling uses a clear-day irradiance profile based on a normalized time relative to sunrise, solar noon, and sunset, which are prescribed by a sun-position algorithm and the latitude and longitude obtained from Google maps. The actual DNI on any given day can be affected by cloud cover, atmospheric attenuation, and other environmental factors.

The ocular hazard predicted by the tool depends on a number of environmental, optical, and human factors, which can be uncertain. We provide input fields and typical ranges of values for these factors so that the user can vary these parameters to see if they have an impact on the results. The speed of SGHAT allows expedited sensitivity and parametric analyses.

The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.

Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.

Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.

Refer to the Help page at www.forgesolar.com/help/ for assumptions and limitations not listed here.

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

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Morgan County Treasurer

Statement of Taxes Due

Account Number R022301

Parcel 103515000015

Assessed To

HASTINGS, JAMES A & LACEY B
34428 CO RD W
HILLROSE, CO 80733

Legal Description

Situs Address

S: 15 T: 4 R: 55 PARC E1/2NE1/4 R1601889 (PARC 5)

Year	Tax	Interest	Fees	Payments	Balance
Tax Charge					
2022	\$35.76	\$0.00	\$0.00	\$0.00	\$35.76
Total Tax Charge					\$35.76
Grand Total Due as of 05/01/2023					\$35.76

Tax Billed at 2022 Rates for Tax Area 219 - 219 - RE 2J

Authority	Mill Levy	Amount	Values	Actual	Assessed
COUNTY GENERAL FUND	19.4830000	\$7.19	GRAZING LAND	\$1,420	\$370
ROAD AND BRIDGE FUND	7.5000000	\$2.78	Total	\$1,420	\$370
SOCIAL SERVICES FUND	2.0000000	\$0.74			
HILLROSE RURAL FIRE DIST	7.7190000	\$2.86			
E MORGAN COUNTY HOSPITAL	4.5000000	\$1.67			
E MORGAN COUNTY LIBRARY	3.5000000	\$1.30			
LOWER S PLATTE WATER CD	1.0000000	\$0.37			
MORGAN CO QUALITY WATER	0.8240000	\$0.30			
NORTHERN COLO WATER CD	1.0000000	\$0.37			
RE 2-J BRUSH GENERAL FD	27.0400000	\$10.01			
RE 2-J BRUSH M/L OVRD	9.3120000	\$3.45			
RE 2-J BRUSH BOND RED	12.7470000	\$4.72			
Taxes Billed 2022	96.6250000	\$35.76			

*****TAX LIEN SALE REDEMPTIONS MUST BE PAID BY CASH OR CASHIER'S CHECK*****

Special taxing districts and the boundaries of such districts may be on file with the County Commissioners, County Clerk, or County Assessor. Unless specifically mentioned, this statement does not include land or improvements assessed under a separate account number, personal property taxes, transfer tax or miscellaneous tax collected on behalf of other entities, special or local improvement district assessments, or manufactured homes.

ROBERT A SAGEL, MORGAN COUNTY TREASURER

231 Ensign St, PO Box 593, Fort Morgan, CO 80701

Phone: 970-542-3518, Fax: 970-542-3520, Email: esale@co.morgan.co.us

Website: morgancounty.colorado.gov

RECEIPT

Morgan County

731 Ensign, Fort Morgan, CO 80701

(970) 542-3526



SU2023-0011 | Special Use Permit

Receipt Number: 543864

Payment Amount: \$5,000.00

April 24, 2023

Transaction Method	Payer	Cashier	Reference Number
Check	US Solar	Jenafer Santos	2031

Comments

Assessed Fee Items

Fee items being paid by this payment

Date	Fee Item	Account Code	Assessed	Amount Paid	Balance Due
4/24/23	Special Use - Manual		\$5,000.00	\$5,000.00	\$0.00
Totals:			\$5,000.00	\$5,000.00	
Previous Payments					\$0.00
Remaining Balance Due					\$0.00

Permit Info

Property Address	Property Owner	Property Owner Address	Valuation
Vacant Hillrose, CO 80733	James A. Hastings & Lacey B. Hastings	34428 Co Rd W Hillrose, CO 80733	

Description of Work

Proposing a 2.19 MWac community solar garden on 12.1 acres

REFERRALS & RESPONSES

Landowner Letter

Landowner Letter Responses

Referral Letter

Referral Responses

Notifications

Public Comments or Concerns

Sign Posting & Notarized Affidavit



**MORGAN COUNTY
PLANNING AND BUILDING DEPARTMENT**

May 18, 2023

Re: Land Use Application- Special Use Permit

Dear Neighboring Landowners:

USS Camp Creek Solar, LLC as applicant and James A. Hastings & Lacey B. Hastings as landowners have submitted an application to our office for a Use by Special Review Permit.

Legal Description: E½NE¼ of Section 15, Township 4 North, Range 55 West of the 6th PM, Morgan County, Colorado.

Request: USS Camp Creek Solar, LLC has submitted a Special Use Permit Application to construct and operate a 2.19MWac solar energy generation facility on 12.1 acres. See attached site map.

This application is scheduled to be heard by the Planning Commission on **Monday, June 12, 2023 at 7:00 p.m.** to be held in the Assembly Room of the Morgan County Administration Building, 231 Ensign St., (Basement Level) Fort Morgan, Colorado. Landowners within ¼ mile of the subject property are notified of the application and hearing date.

Documents pertaining to the above identified matters are on file in the Planning Administrator's Office, 231 Ensign St., Fort Morgan, Colorado. Documents will also be available on the Morgan County Website <https://morgancounty.colorado.gov>

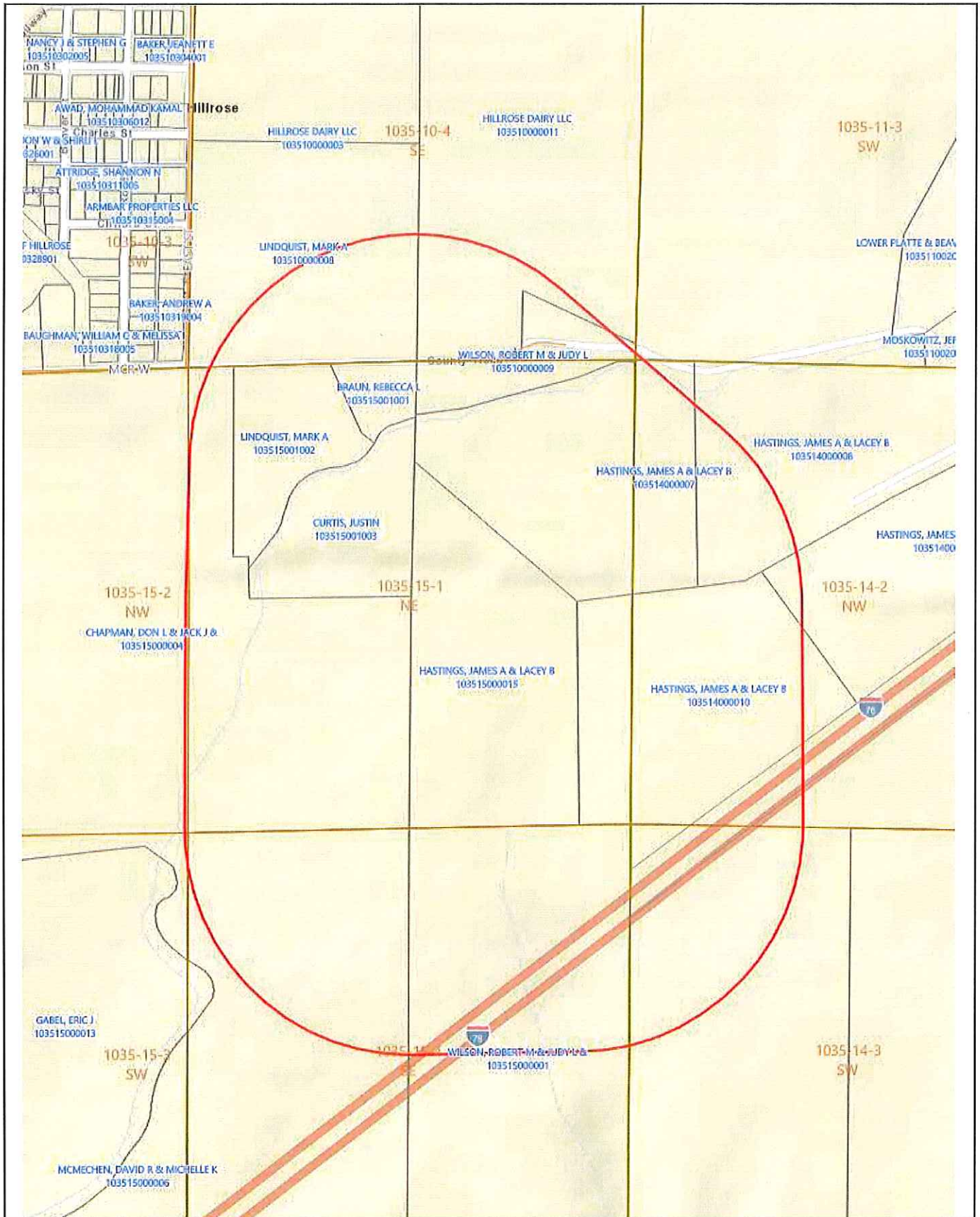
If you have any questions pertaining to this application or if you would like to review the file, either contact us at (970) 542-3526 or stop by our office prior to the hearing. You may attend the public hearing and provide comments on the application, or alternatively, if you are not able to attend you may submit written comments to our office no later than **noon on June 2, 2023.**

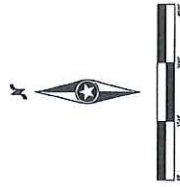
Sincerely,

Nicole Hay

Nicole Hay
Planning Administrator

15-4-55_USS Camp Creek Solar LLC_SU2023-0011





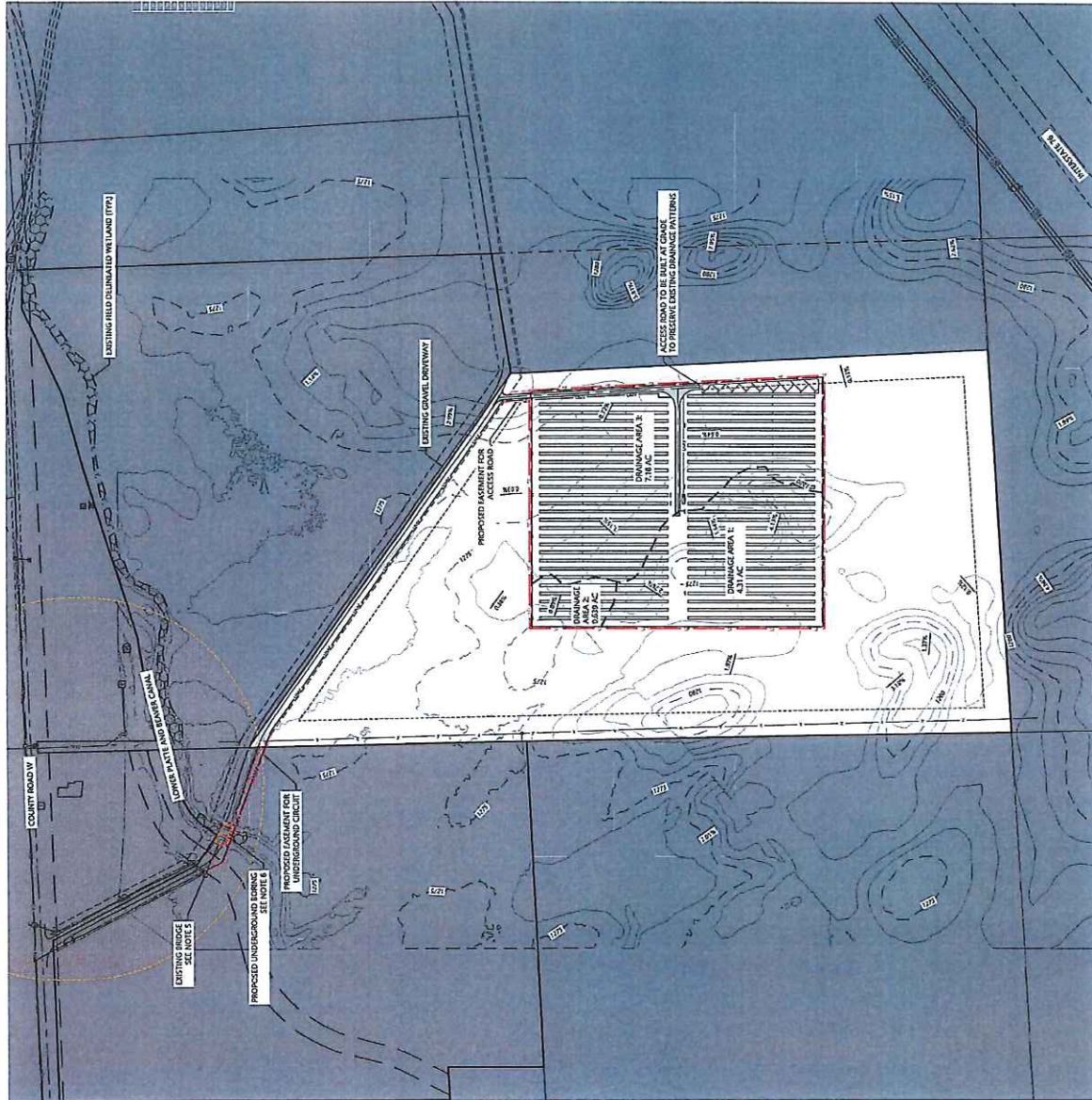
**USS Camp Creek
Solar LLC**
Morgan County,
Colorado

Site Hydrology

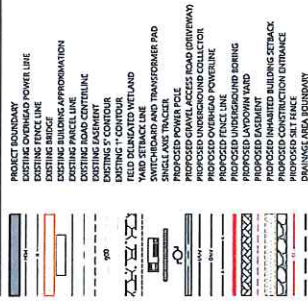
**PRELIMINARY
NOT FOR CONSTRUCTION**

DATE: 04/12/2023

C201



LEGEND



GENERAL NOTES

1. **INSTALLATION TO COMPLY WITH NEC 2017 ARTICLE 250**
THE INSTALLATION SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) 2017 ARTICLE 250 AND NATIONAL CODES OR REGULATIONS FOR THE SAME. EQUIPMENT SHALL BE LABELED PER NEC 910 AND 912. ACCESS ROADS SHALL BE DESIGNED TO ACCOMMODATE THE WEIGHT OF TRUCKS, TRAILERS, OPERATIONS MAINTENANCE, AND UTILITY TRAFFIC THROUGHOUT THE SITE.
2. **THE ENTIRETY OF THE SITE REQUIRES VEGETATION ESTABLISHMENT PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION**
VEGETATION SHALL BE ESTABLISHED TO PREVENT DISTURBANCE. VEGETATION MUST BE ESTABLISHED WITH A DENSITY OF 70% COVERAGE. ANNUAL VEGETATION COVER CAN BE USED FOR PROJECT DURATIONS LESS THAN ONE GROWING SEASON.
3. **VEGETATION ESTABLISHMENT IS NEEDED FOR PROJECT DURATION WHICH EXCEEDS 1440 ONE GROWING SEASON.**

HASTINGS, JAMES A & LACEY B
34428 CO RD W
HILLROSE, CO 80733

WILSON, ROBERT M & JUDY L &
CRANNELL, JOHN T & MONIKA F
33885 CO RD W
HILLROSE, CO 80733

HILLROSE DAIRY LLC
35372 CO RD AA
HILLROSE, CO 80733

LINDQUIST, MARK A
19278 E STANFORD DR
AURORA, CO 80015

BRAUN, REBECCA L
33730 CO RD W
HILLROSE, CO 80733

CHAPMAN, DON L & JACK J &
CHAPMAN, WILLIAM I FAMILY TRUST
34272 CO RD X
HILLROSE, CO 80733

CHAPMAN, WILLIAM I FAMILY TRUST
35516 CO RD X
HILLROSE, CO 80733

CURTIS, JUSTIN
11626 HWY 71
BRUSH, CO 80723



MORGAN COUNTY PLANNING AND BUILDING DEPARTMENT

TO REFERRAL AGENCIES:

Brush Fire Department
CDOT
Century Link
City of Brush
Division of Wildlife
Hillrose Fire Department
Kinder Morgan, Inc.
Lower Platte and Beaver Ditch
Morgan County Assessor

Morgan County Communications Center
Morgan County Quality Water
Morgan County Road & Bridge
Morgan County Rural Electric Assoc.
Morgan County Sheriff
Morgan Soil Conservation District
Town of Hillrose
Xcel Energy

FROM: Cheryl Brindisi, Morgan County Planning & Zoning Administrative Assistant
231 Ensign St, PO Box 596, Fort Morgan, CO 80701
970-542-3526 / 970-542-3509 fax / cbrindisi@co.morgan.co.us

DATE: May 18, 2023

RE: Land Use Application- Special Use Permit

The following Special Use Permit application will be heard by the Planning Commission on **Monday, June 12, 2023 at 7:00 p.m.** in the Assembly Room of the Morgan County Administrative Building, 231 Ensign Street, Fort Morgan, CO 80701 (Basement level; use elevator entrance in SW corner). You are welcome to attend and comment at this public meeting.

Applicant: USS Camp Creek Solar, LLC

Landowners: James A. Hastings & Lacey B. Hastings

Legal Description: E½NE¼ of Section 15, Township 4 North, Range 55 West of the 6th PM, Morgan County, Colorado.

Request: USS Camp Creek, LLC has submitted a Special Use Permit Application to construct and operate a 2.19MWac solar energy generation facility on 12.1 acres. See attached site map.

Documents pertaining to the above identified matters are on file in the Planning Administrator's Office, 231 Ensign St., Fort Morgan, Colorado. Documents are also available on the Morgan County Website
<https://morgancounty.colorado.gov>

Please offer any comments or concerns you may have about this application.
Do not hesitate to contact me at any time if you have questions.

You are encouraged to provide comments to this application by June 2, 2023 or attend the Planning Commission meeting on Monday, June 12, 2023. (See Map Attached)

Sincerely,

Cheryl Brindisi

Morgan County Planning & Zoning Administrative Assistant



Right of Way & Permits

1123 West 3rd Avenue
Denver, Colorado 80223
Telephone: 303.285.6612
violeta.ciocanu@xcelenergy.com

May 31, 2023

Morgan County Planning and Building Department
231 Ensign / PO Box 596
Fort Morgan, CO 80701

Attn: Nicole Hay and Cheryl Brindisi

Re: Solar Energy Generation Facility – Land Use Application – Special Use Permit

Public Service Company of Colorado's (PSCo) Right of Way & Permits Referral Desk has reviewed the plan for **Solar Energy Generation Facility**.

PSCo owns and operated existing electric distribution facilities south of County Road W along the private road leading to the subject property. Additional easements may need to be acquired by separate document (i.e. transformer) – be sure to ask the Designer to contact a Right-of-Way & Permits Agent in this event.

As a safety precaution, PSCo would like to remind the developer to call the Utility Notification Center by dialing 811 for utility locates prior to construction.

Violeta Ciocanu (Chokanu)
Right of Way and Permits
Public Service Company of Colorado dba Xcel Energy
Office: 303-285-6612 – Email: violeta.ciocanu@xcelenergy.com



Cheryl Brindisi <cbrindisi@co.morgan.co.us>

USS Camp Creek Solar, LLC/Morgan County/I-76 off

1 message

Hice-Idler - CDOT Contractor, Gloria <gloria.hice-idler@state.co.us>

Thu, Jun 1, 2023 at 11:53 AM

To: cbrindisi@co.morgan.co.us

Cc: Timothy Bilobran - CDOT <timothy.bilobran@state.co.us>, Allyson Young - CDOT <allyson.young@state.co.us>, "Robert (Mike) Shepherd - CDOT" <mike.shepherd@state.co.us>

CDOT has no comment regarding this proposal.

Gloria Hice-Idler
Rocksol Consulting

(970) 381-8629

cid:image001.png@01D05B52.DA3F45D010601 W. 10th Street, Greeley, CO 80634
gloria.hice-idler@state.co.us | www.codot.gov | www.cotrip.org**COLORADO**Department of Transportation
Region 4image001.png
17K



Cheryl Brindisi <cbrindisi@co.morgan.co.us>

Special Use Application

Tyler Purvis <tpurvis@brushcolo.com>

Mon, Jun 5, 2023 at 9:55 AM

To: Cheryl Brindisi <cbrindisi@co.morgan.co.us>

Cc: Nicole Hay <nhay@co.morgan.co.us>, Jenafer Santos <jsantos@co.morgan.co.us>, Liliana Lopez <llopez@co.morgan.co.us>

Sorry for the delay. The City of Brush! has no concerns or comments on the application.

From: Cheryl Brindisi <cbrindisi@co.morgan.co.us>**Sent:** Thursday, May 18, 2023 8:35 AM

To: Bilobran - CDOT, Timothy <timothy.bilobran@state.co.us>; Century Link - Brian Vance <Brian.Vance@centurylink.com>; Kinder Morgan - Jeff Voltattorni <Jeff.Voltattorni@elpaso.com>; Tim Amen <asmorganc@co.morgan.co.us>; Danette Martin <djmartin@co.morgan.co.us>; David Martin <dmartin@co.morgan.co.us>; John Goodman <jgoodman@co.morgan.co.us>; MCQW - Kent Pflager <kpflager@mcqwd.org>; Mel Bustos <melb@nchd.org>; Roger Doll <rdoll@co.morgan.co.us>; Todd Cozad <todd.cozad@state.co.us>; Loranda Packard <lpackard@brushcolo.com>; James Rehn <jrehn@co.morgan.co.us>; Bruce Bass <bbass@co.morgan.co.us>; Brent Kliesen <bkliesen@mcrea.org>; MCREA - Kevin Martens <kmartens@mcrea.org>; MCQW - Kay Zarbock <kzarbock@mcqwd.org>; Soil Conservation Dist - Danielle French <morganconservationdistrict@gmail.com>; Monty Torres <mtorres@brushcolo.com>; ray.uhrick@brushfd.com <ray.uhrick@brushfd.com>; J Struble <jstruble@northernwater.org>; Jace Driver - CDPHE <jace.driver@state.co.us>; Tad Anderson <tad.anderson@brushfd.com>; Tyler Purvis <tpurvis@brushcolo.com>; Ciocanu, Violeta <Violeta.Ciocanu@xcelenergy.com>; townhillrose@kci.net <townhillrose@kci.net>; Town of Hillrose <townofhillrose@outlook.com>

Cc: Nicole Hay <nhay@co.morgan.co.us>; Jenafer Santos <jsantos@co.morgan.co.us>; Liliana Lopez <llopez@co.morgan.co.us>

Subject: Special Use Application

[Quoted text hidden]

NOTICE OF PUBLIC HEARING
MORGAN COUNTY PLANNING COMMISSION
JUNE 12, 2023 AT 7:00 P.M.
VIRTUAL AND IN PERSON IN THE ASSEMBLY ROOM, MORGAN
COUNTY ADMINISTRATIVE BUILDING, 231 ENSIGN, FORT MOR-
GAN, COLORADO

Notice is hereby given that on the date and time above (or as soon as possible following the scheduled time) and at the location above, or at such time and place as this hearing may be adjourned, the Morgan County Planning Commission will conduct public hearings on the following proposed Land Use Applications:

- 1.) Applicant: USS Camp Creek Solar LLC
Landowners: James and Lacey Hastings
Legal Description: Parcel in the E1/4NE1/4 of Section 15,
Township 4 North, Range 55 West of the 6th P.M., Morgan
County, Colorado.
Request: Special Use Permit to construct and operate
approximately 2.19MWac solar energy generation facility.
Date of Application: April 24, 2023.

THE COUNTY WILL CONTINUE TO OFFER THE OPTION TO ATTEND MEETINGS REMOTELY. IF YOU HAVE ANY QUESTIONS REGARDING ATTENDING THE MEETING, PLEASE CONTACT THE PLANNING OFFICES AT 970-542-3526.

To participate remotely you may connect via Zoom at:
<https://us02web.zoom.us/j/81340030615>

Or Telephone:

Dial:
+1 719 359 4580 US
Webinar ID: 813 4003 0615

Documents pertaining to the above identified matters are on file in the Planning Administrator's Office, 231 Ensign St., Fort Morgan, Colorado. Documents will also be available on the Morgan County Website <https://morgancounty.colorado.gov>

At time of the meeting an opportunity will be given for presentation of evidence in support of or in opposition to the application.

Nicole Hay
Morgan County Planning Administrator

Published: Fort Morgan Times May 27, 2023 - 1978657

Prairie Mountain Media, LLC

PUBLISHER'S AFFIDAVIT

County of Morgan
State of Colorado

The undersigned, Agent, being first duly sworn under oath, states and affirms as follows:

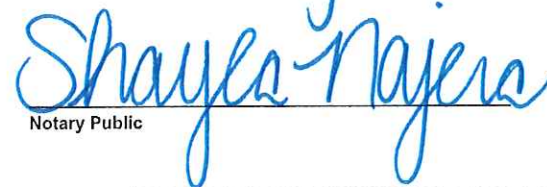
1. He/she is the legal Advertising Reviewer of Prairie Mountain Media LLC, publisher of the *Fort Morgan Times*.
2. The *Fort Morgan Times* is a newspaper of general circulation that has been published continuously and without interruption for at least fifty-two weeks in Morgan County and meets the legal requisites for a legal newspaper under Colo. Rev. Stat. 24-70-103.
3. The notice that is attached hereto is a true copy, published in the *Fort Morgan Times* in Morgan County on the following date(s):

May 27, 2023


Signature

Subscribed and sworn to me before me this

30th day of May, 2023


Notary Public

(SEAL)

SHAYLA NAJERA
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20174031965
MY COMMISSION EXPIRES July 31, 2025

Account: 1052763
Ad Number: 1978657
Fee: \$45.08

**NOTICE OF PUBLIC HEARING
MORGAN COUNTY PLANNING COMMISSION
JUNE 12, 2023 AT 7:00 P.M.
VIRTUAL AND IN PERSON IN THE ASSEMBLY ROOM, MORGAN COUNTY
ADMINISTRATIVE BUILDING, 231 ENSIGN, FORT MORGAN, COLORADO**

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Nicole Hay
Morgan County Planning Administrator

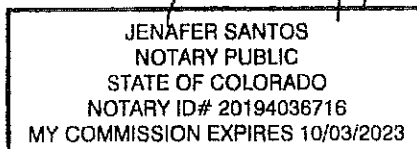
Published: May 27, 2023

The above sign was posted on (date) 6/1/2023, pursuant to the
Morgan County Zoning Resolution by (name of applicant) US Solar.

Project name and number: US Solar SU2023-0011

Signature of Applicant/Representative: [Signature]

STATE OF COLORADO)
) ss.
COUNTY OF MORGAN)



Signed before me this date: 6/1/2023

My Commission expires: 10/03/2023

NOTARIZED BY: [Signature]



ADDITIONAL INFORMATION